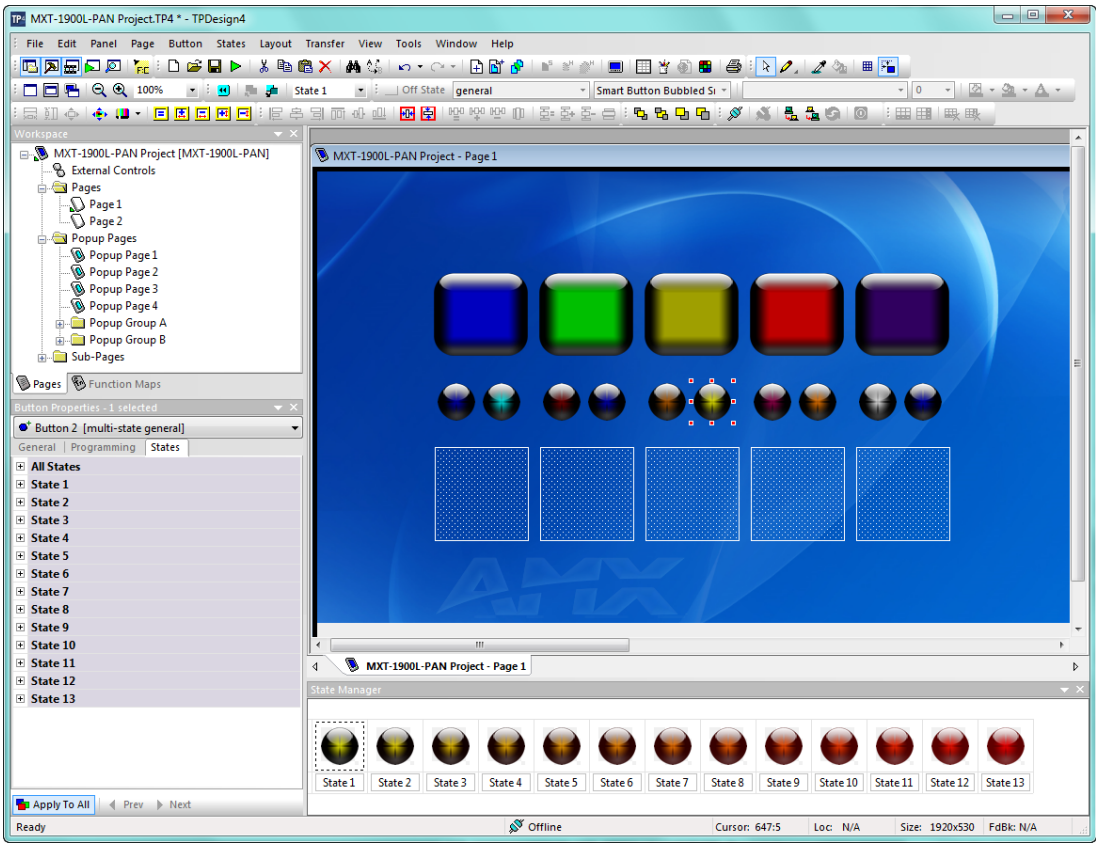
Operation/Reference Guide

TPDesign4

Touch Panel Design/Programming Software

(v3.2 or higher)



PRELIMINARY RESULTS

Development Tools

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TPDesign4 - G4 Touch Panel Design

Overview

The TPDesign4 (or "TPD4") Touch Panel Design program is designed to assist you in creating a state-of-the-art touch panel interface for AMX's G4 Level touch panels (including the Modero line, MIO-R4 remote controllers, and the NXP-TPI/4 Touch Panel Interface).

Use TPD4 to create Project Files (*.TP4) containing all of the information required to define a user-interface to be utilized on a G4 touch panel. This includes Pages, Popup Pages and associated navigation/page-flip information, as well as buttons (including function code information), and all image and sound-related files that are used in the design (including dynamic images and video feeds).

What's New in Version 3.2

New Panel Devices: Modero X Series Touch Panels

FIG. 1 Modero X Series Touch Panels

- **MXT-2000XL-PAN** - 20.3" Modero® X Series Panoramic Tabletop Touch Panel - FG5968-01
- **MXD-2000XL-PAN** - 20.3" Modero® X Series Panoramic Wall Touch Panel: Portrait Mode - FG5968-05
- **MXD-2000XL-PAN** - 20.3" Modero® X Series Panoramic Wall Touch Panel: Landscape Mode - FG5968-11
- **MXT-1900L-PAN** - 19.4" Modero® X Series Panoramic Tabletop Touch Panel - FG5968-02
- **MXD-1900L-PAN** - 19.4" Modero® X Series Panoramic Wall Touch Panel: Portrait Mode - FG5968-06
- **MXD-1900L-PAN** - 19.4" Modero® X Series Panoramic Wall Touch Panel: Landscape Mode - FG5968-12

Other New Panels

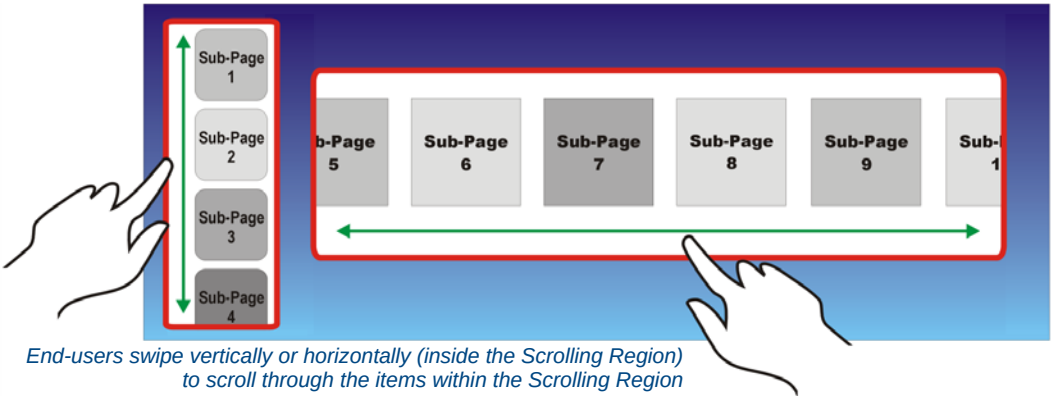
- **NXD-700i** - 7" Modero® Wall/Flush Mount Touch Panel with Intercom (FG2258-10)
- **NXT-CA7** - 7" Modero® Tabletop Touch Panel (FG2258-09)

Scrolling Regions

Scrolling Regions represent a powerful new method of presenting functions on AMX Modero X Series Touch Panels. A Scrolling Region is a specific area on a touch panel page that contains a set of elements that scroll as a group.

The illustration in FIG. 2 below shows a basic example of a touch panel page with two Scrolling Regions - one vertical and one horizontal. The red borders represent the boundaries of the Scrolling Regions, and the items labelled "*SubPage <x>*" scroll within the boundaries of the Scrolling Region (either vertically or horizontally). End-users use swipes to scroll through the items in the Scrolling Region.

- All of the items within the Scrolling Region move as a group.
- Each item within the Scrolling Region can be pressed like traditional buttons



End-users swipe vertically or horizontally (inside the Scrolling Region) to scroll through the items within the Scrolling Region

FIG. 2 Example of Scrolling Regions on a Touch Panel Page

- Scrolling Regions and related features (including *Sub-Pages*, *Sub-Page Sets* and *Sub-Page View buttons*) are supported only by Modero X Series Touch Panels.
- See the *Scrolling Regions* section on page 173 for details.

Popup Pages - Popup Types

Popup Pages are now sub-divided into two types: *Standard* Popup Pages and *Sub-Pages*.

- Sub-Pages are used with the new Sub-Page View button type (see below), in order to create *Scrolling Regions*.
- Sub-Pages must be added to a *Sub-Page Set* (see below) for use with a *Sub-Page View* button.
- See the *Sub-Pages* section on page 119 for details.

Sub-Page Sets

Sub-Page Sets are an ordered collection of *Sub-Pages* that can be assigned to one or more *Sub-Page View buttons* to create Scrolling Regions.

See the *Sub-Page Sets* section on page 179 for details.

Sub-Page View Buttons

Sub-Page View buttons are a new button type that contains a *Sub-Page Set*.

See the *Sub-Page View Buttons* section on page 157 for details.

Two-Finger Gestures

- Modero X Series Touch Panels support both single- and two-finger gestures.
- These can be programmed as external buttons.
- See the *Two-Finger Gestures* section on page 169 for details.

Supported Windows Platforms and PC Requirements

Supported Operating Systems

- Windows 7 Business (32/64-bit)

NOTE

You must have Power User (or Administrator) rights to install and run all required System files.

Supported Languages

- English
- French
- German
- Spanish
- Japanese
- Italian
- Russian
- Chinese (Classic, HK)
- Chinese (Simplified, PRC)
- Arabic
- Portuguese
- Flemish (Dutch)
- Greek
- Turkish

PC Requirements/Recommendations

- Pentium III 750MHZ processor (minimum requirement); 1.5GHz or faster recommended.
- 700 MB of free disk space (minimum requirement)
- 512 MB of RAM (minimum - SQL Server 2005 Express Edition requires 512MB)
- Minimum (VGA) screen resolution of 800x600.
- Windows-compatible mouse (or other pointing device).

NOTE

If the mouse wheel on your Microsoft® IntelliMouse® doesn't work with VA, try downloading the latest IntelliMouse drivers from Microsoft.

Supported Touch Panels

TPDesign4 (v3.2 or higher) supports the following AMX (G4) touch panel types:

Supported Touch Panels		
MXT-2000XL-PAN	20.3" Modero® X Series Panoramic Tabletop	FG5968-01
MXD-2000XL-PAN	20.3" Modero® X Series Panoramic Wall: Portrait Mode	FG5968-05
MXD-2000XL-PAN	20.3" Modero® X Series Panoramic Wall: Landscape Mode	FG5968-11
MXT-1900L-PAN	19.4" Modero® X Series Panoramic Tabletop	FG5968-02
MXD-1900L-PAN	19.4" Modero® X Series Panoramic Wall: Portrait Mode	FG5968-06
MXD-1900L-PAN	19.4" Modero® X Series Panoramic Wall: Landscape Mode	FG5968-12
MVP-5100	5.2" Modero ViewPoint IR	FG5966-08
MVP-5150	5.2" Modero ViewPoint Wi-Fi	FG5966-07
MVP-5200i:	5.2" Modero ViewPoint with Intercom	FG5966-01
MVP-7500	7.5" Modero ViewPoint	FG5965-01
MVP-8400i	8.4" Modero ViewPoint with Intercom	FG5965-04
MVP-8400	8.4" Modero ViewPoint	FG5965-05
MVP-9000i	9" Modero ViewPoint with Intercom	FG5967-01
NXD-430	4.3" Modero Wall/Flush Mount	FG2262-01
NXD-435	4.3" Modero Wall/Flush Mount	FG2262-03
NXD-CV5	5" Modero Wall/Flush Mount	FG2261-01
NXD-500i	5" Modero Wall/Flush Mount	FG2261-02

Supported Touch Panels (Cont.)		
NXD/NXT-CV7	7" Modero Wall/Flush Mount & Table Top	FG2258-02K, FG2258-01K
NXD-700vi	7" Modero Wall/Flush Mount with Intercom	FG2258-04K
NXD/NXT-CV10	10" Modero Wall/Flush Mount & Table Top	FG2259-02K, FG2259-01K
NXT-CV10/PB	10" Modero Table Top with Pushbuttons	FG2259-03K
NXD-1000vi	10" Modero Wall/Flush Mount with Intercom	FG2259-04K
NXD/NXT-CA12	12" Flush Mount & Table Top	FG2251-10, FG2250
NXD/NXT-CV12	12" Flush Mount & Table Top Video	FG2251-12K, FG2250-11K
NXD/NXT-1200V	12" Modero Video Wall/Flush Mount & Table Top	FG2251-60K, FG2250-60K
NXD/NXT-1200VG	12" Modero VG Series Wall/Flush Mount & Table Top with RGB	FG2251-61RGB, FG2250-61V
NXD/NXT-CA15	15" Flush Mount & Table Top	FG2253-10, FG2252
NXD/NXT-CV15	15" Flush Mount & Table Top Video	FG2253-12K, FG2252-11K
NXD/NXT-1500VG	15" Modero VG Series Wall/Flush Mount & Table Top	FG2253-61V, FG2252-61V
NXD/NXT-CV17	17" Flush Mount & Table Top Color Video	FG2256K, FG2257K
NXD/NXT-1700VG	17" Modero VG Series Wall/Flush Mount & Table Top	FG2256-61V, FG2257-61V
NXP-PLV	Modero PosiTrack Pilot Camera Controller	FG630-100
NXP-TPI4	NetLinx Touch Panel Interface	FG2275-01
NXV-300	Modero Virtual Touch Panel	FG2263-01
TPI-PRO	Total Presentation Interface, 2/4 Source Input	FG2275-102, FG2275-104
TPI-PRO-DVI	Total Presentation Interface with DVI, 2/4 Source Input	FG2275-112, FG2275-114
R-4	Mio R-4 Remote	FG148-04

Supported Screen Resolutions

While many touch panels support a single screen resolution, several support multiple resolutions, selectable in the *New Project Wizard - Step 1* dialog.

The screen resolution setting for these panel devices can be changed later via the **Screen Size** option in the *Save As Different Panel Type* dialog.

TPD4 provides scrolling if a Design View is larger than the available visible work area.

Supported panel types per screen resolution:

Supported Screen Resolutions		
Resolution	Panel Type(s)	
1920 x 1200	TPI-PRO	TPI-PRO-DVI
1920 x 1080 VESA/CEA	TPI-PRO-DVI	
1920 x 1080	TPI-PRO	
1920 x 800	MXT/D-2000XL-PAN	
800 x 1920	MXD-2000XL-PAN	
1920 x 530	MXT/D-1900L-PAN	
530 x 1920	MXD-1900L-PAN	

Supported Screen Resolutions (Cont.)		
Resolution	Panel Type(s)	
1680 x 1050	TPI-PRO	TPI-PRO-DVI
1600 x 1200	TPI-PRO	TPI-PRO-DVI
1440 x 900	TPI-PRO	TPI-PRO-DVI
1360 x 768	TPI-PRO	TPI-PRO-DVI
1280 x 1024	TPI-PRO	TPI-PRO-DVI NXP-TPI4
1280 x 768	TPI-PRO TPI-PRO-DVI	1700VG CV17
1280 x 720 VESA/CEA	TPI-PRO-DVI	
1280 x 720	TPI-PRO	
1024 x 768	TPI-PRO TPI-PRO-DVI iPad (TPC)	NXP-TPI4 1500VG CV15 CA15
768 x 1024 (Portrait Mode)	iPad (TPC)	
800 x 600	MVP-8400i MVP-8400 1200V 1200VG	CA12 CV12 NXP-TPI4 TPI-PRO TPI-PRO-DVI
800 x 480	MVP-9000i MVP-5150 MVP-5200i NXD-1000Vi NXD-700Vi NXD-500i	NXV-300 CV5 CV7 CV10 CV10/PB NXP-PLV
480 x 800 (Portrait Mode)	MVP-9000i	NXD-500i
720 x 576 CEA	TPI-PRO-DVI	
720 x 480 CEA	TPI-PRO-DVI	
640 x 480	MVP-7500 NXP-TPI4	TPI-PRO TPI-PRO-DVI
480 x 320	iPhone (TPC)	iPod touch (TPC)
320 x 480 (Portrait Mode)	iPhone (TPC)	iPod touch (TPC)
480 x 272	NXD-430 NXD-435	NXV-300
272 x 480 (Portrait Mode)	NXD-430	NXD-435
240 x 320	R-4	

Screen Resolutions By Panel Type

While many touch panels support a single screen resolution, several support multiple resolutions, selectable in the New Project Wizard - Step 1 dialog.

The screen resolution setting for these panel devices can be changed later via the **Screen Size** option in the *Save As Different Panel Type* dialog.

PD4 provides scrolling if a Design View is larger than the available visible work area.

Supported screen resolutions per panel type:

Supported Screen Resolutions Per Panel Type		
Touch Panel	Supported Screen Resolution(s)	
MVP-5150	800 x 400	
MVP-5200i	800 x 400	
MVP-7500	640 x 480	
MVP-8400i	800 x 600	
MVP-8400	800 x 600	
MVP-9000i	800 x 480	480 x 800
NXD-430	480 x 272	272 x 480
NXD-435	480 x 272	272 x 480
NXD-500i	800 x 480	480 x 800
NXD-CV5	800 x 480	
NXD-700Vi	800 x 480	
NXD/T-CV7	800 x 480	
NXD-1000Vi	800 x 480	
NXD/T-CV10	800 x 480	
NXT-CV10/PB	800 x 480	
NXD/T-1200V	800 x 600	
NXD/T-1200VG	800 x 600	
NXD/T-CA12	800 x 600	
NXD/T-CV12	800 x 600	
NXD/T-1500VG	1024 x 768	
NXD/T-CA15	1024 x 768	
NXD/T-CV15	1024 x 768	
NXD/T-1700VG	1024 x 768	
NXD/T-CV17	1024 x 768	
MXT-1900L-PAN	1920 x 530	
MXD-1900L-PAN	1920 x 530	530 x 1920
MXT-2000XL-PAN	1920 x 800	
MXD-2000XL-PAN	1920 x 800	800 x 1920
NXP-PLV	800 x 480	
NXP-TPI4	640 x 480 800 x 600	1024 x 768 1280 x 1024

Supported Screen Resolutions Per Panel Type (Cont.)		
Touch Panel	Supported Screen Resolution(s)	
TPI-PRO	640 x 480 800 x 600 1024 x 768 1280 x 720 1280 x 768 1280 x 800 1280 x 1024	1360 x 768 1440 x 900 1600 x 1200 1680 x 1050 1920 x 1080 1920 x 1200
TPI-PRO-DVI 2/4	640 x 480 720 x 480 CEA 720 x 576 CEA 800 x 600 1024 x 768 1280 x 720 VESA 1280 x 720 CEA 1280 x 768 1280 x 800	1280 x 1024 1360 x 768 1440 x 900 1600 x 1200 1680 x 1050 1920 x 1080 VESA 1920 x 1080 CEA 1920 x 1200
NXV-300	480 x 272	800 x 480
R-4	240 x 320	
iPhone (TPC)	480 x 320	320 x 480
iPhone4 (TPC)	480 x 320	320 x 480
iPod Touch (TPC)	480 x 320	320 x 480
iPad	1024 x 768	768 x 1024

Video Capabilities for Modero Panels

Video Capable Modero Panels all support Composite video inputs. These include:

- NXT/NXD-CV7
- NXD/NXT-CV10
- NXD/NXT-CV10/PB
- NXT/NXD-CV12
- NXT/NXD-CV15
- NXT/NXD-CV17

Video Capabilities for Enhanced Modero Panels

Video capable Enhanced Modero Panels all support Composite, Component/RGB and Streaming video inputs. These include:

- NXT/NXD-1500VG
- NXT/NXD-1700VG
- NXT/NXD-1200VG
- NXT/NXD-1200V (Composite only)

While the NXT/NXD-1200V panel is considered to be part of the enhanced Modero family of Panels, it also supports Composite video (only).

Intercom Capabilities for Modero Panels

Intercom-equipped Modero Panels support 2-way full-duplex intercom capabilities. These panels include:

- MVP-5200i
- MVP-8400i
- MVP-9000i
- NXD-1000vi
- NXD-700vi

AMX Touch Panels that Support Dynamo Resource Images

The following list indicates the AMX Touch Panels that support Dynamo Resource Images (at the time of this TPDesign4 release). This list will be updated as support for Dynamo Resource Images is added to new and existing panels:

- Modero X Series Touch Panels
- NXD-1000Vi
- MVP-8400i
- MVP-8400
- MVP-5200i
- NXD-700Vi
- NXD-500i

True Type Font Support

Since G4 panels have the ability to decode and display Windows True Type Font files (TTF), TPD4 directly utilizes TTF files.

- Fonts are presented in the *Properties window* (States tab), as well as the Button Selection/Draw toolbar and the *Add Page* and *Add Popup Page* dialogs.
- The TTF files listed represent those TTF files installed in Windows with their available point sizes.

Related AMX Software Applications

The related AMX software applications described in the following sections are available to download from www.amx.com.

NetLinx Studio

NetLinx Studio is a full featured Integrated Development Environment (IDE) for NetLinx and Axcess Control Systems.

- NetLinx Studio is available for free download from www.amx.com.
- Refer to the NetLinx Studio online help and Instruction Manual for instructions.

AMX WebUpdate

The AMX WebUpdate program is a stand-alone application that communicates with the AMX website, allows a user to select from a list of available AMX Software programs to choose for updating, determines the latest version of the selected applications, returns a listing of available updates, allows a user to download the selected installation files, and upon request, launches the installation of those downloads.

The WebUpdate application is not installed by TPD4, and must be installed separately. If not found, TPD4 will prompt you to download the application from www.amx.com.

G4 PanelBuilder

G4 PanelBuilder is a stand-alone application (installed separately) from AMX that allows you to quickly create TPD4 projects for G4 Touchpanels, using either pre-fabricated templates from AMX, or user-designed templates. The G4 PanelBuilder application is designed to do the bulk of the basic layout and navigational design of a touch panel design. TPD4 is required to complete the project by specifying channel mapping information, and to generally fine-tune the project as needed.

Although G4 PanelBuilder is installed separately, it is fully integrated with TPD4. For example, the **File > New From G4 PanelBuilder** option (available only if G4 PanelBuilder is installed) launches the G4 PanelBuilder application to allow you to create a new TPD4 project.

Use the set of options in the File menu to access the key functions of the G4 PanelBuilder application:

- Click **File > New From G4 Panel Builder** to create a new TP4 panel project using G4 PanelBuilder.
- Click **File > Import Touch Panel Template** to import an existing PanelBuilder (*.TPT) or Visual Architect template file (*.VAT) into TPD4 as a starting point for your panel design.
- Click **File > Export G4 PanelBuilder Template** to export the active TP4 project as a PanelBuilder Template file (*.TPT).

For details on using G4 PanelBuilder to generate G4 PanelBuilder project files (.PB4), refer to the G4 PanelBuilder online help.*

G4 PanelPreview

G4 PanelPreview is a stand-alone application (installed separately) from AMX that allows you to preview TPD4 projects for G4 Touchpanels. To preview your panel project, select **Panel > Send To G4 PanelPreview** (or click the toolbar button) to launch the G4 PanelPreview application, where you can preview the project and simulate push and release of buttons, (including multi-state and bar graph buttons) via the mouse and keyboard on your PC.

The G4 PanelPreview application is available from www.amx.com, and must be installed in order to activate this menu option.

Refer to the G4 PanelPreview online help file for details.

The TPDesign4 Work Area

Overview

The TPDesign4 work area consists of several main components (FIG. 1):

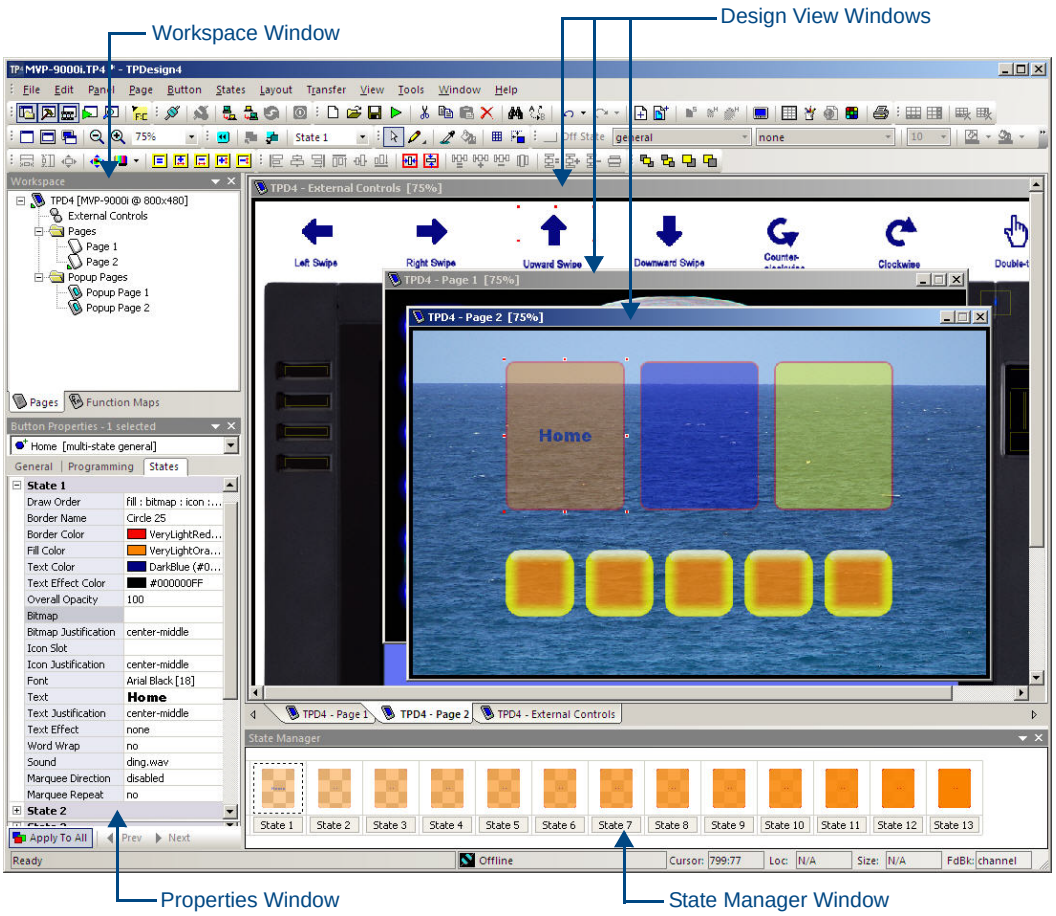


FIG. 1 TPDesign4 Work Area

In its default configuration, from top to bottom, left to right, the main components are:

TPDesign4 Work Area Components	
Title Bar	Lists the name of the active Project file.
Menu Bar	Contains the main menu options (*File*, *Edit*, *Panel*, *Page*, *Button*, *States*, *Layout*, *Transfer*, *View*, *Tools*, *Window*, and *Help*). See the *Menus* section on page 2 for details.
Toolbars	You can choose which toolbars to show in the workspace via the View > Toolbars sub-menu. Click View, then click in the checkboxes to select/de-select the listed toolbars (including custom toolbars). If a toolbar has a check next to it in the sub-menu, then it is displayed. These settings are saved, so they'll apply the next time the application is launched. See the *Toolbars* section on page 11 for details.

TPDesign4 Work Area Components (Cont.)	
Design View Windows	Each tabbed *Design View* window represents a Touch Panel page or popup page. Note that a MDI tab is displayed for each opened page. Use the *View* > *MDI Page Tabs* option to toggle the page tabs. When this option is enabled, a tab is displayed for each open page. These tabs normally appear along the bottom edge of the Design View window area, but can be moved, toggled or modified via the MDI tabs context menu (right-click inside any of the tabs to open - see the *Design View Window MDI Tab Controls* section on page 22 for details). See the *Design View Windows* section on page 19 for details.
Workspace Window	Contains two tabs: • The *Pages* tab contains a tree structure representing all open projects, and their pages and popup pages. Use the Pages tabs to open/edit the pages / popup pages in each project. See the *Workspace Window- Pages Tab* section on page 25 for details. • The Function Maps tab allows you to view/edit the function codes associated with each page.See the *Workspace Window- Function Maps Tab* section on page 26 for details.
Properties Window	Contains three tabs: • The *General* tab allows you to view/edit general (non-state oriented) button properties. See the *Properties Window - General Tab* section on page 28 for details. • The *Programming* tab allows you view/edit programming-oriented properties. See the *Properties Window - Programming Tab* section on page 28 for details. • The *States* tab allows you to view/edit button state information. See the *Properties Window - States Tab* section on page 29 for details.
State Manager Window	Displays each state of the selected button as a thumbnail image in this window. The *State Manager* allows you to view/edit the various states of a selected button. See the *State Manager Window* section on page 30 for details.
Status Bar	By default, the Status Bar shows the current XY cursor position, and (for the button the mouse is over): Channel code, Address code, Level code, button size, panel revision, Feedback and Initial page file target information. The Status Bar also indicates the status of your connection to the NetLinx Master.

Menus

File Menu

Contains typical File menu options (Save, Save As, Print, Exit), plus several options relating to file conversion and file transfer:

File Menu	
New	Launches the *New Project Wizard* which will guide you through the process of setting up a new TPD4 project, including the initial page settings (including page color, and font color/characteristics). The settings specified for the initial page will be the default settings for all subsequent new pages that are added to the project. These settings can be customized for each page at any time. See the *Using the New Project Wizard* section on page 35 for details.
New From G4 PanelBuilder	Use this option to create new TPD4 project using the G4 PanelBuilder application (installed separately). See the G4 Panel online help for details.
Open	Invokes the *Open* dialog, where you can locate/open existing TPD4 (*.TP4) files.
Close	Closes the active project. The program will prompt you to save any unsaved changes to the project before closing.
Open System Page Template	Opens the System Page Template - a pre-fabricated set of touch pages, popup pages and buttons that allow you to configure/adjust various aspects of the Touch Panel running a G4 touch panel file. This option is only available if you have a TPD4 project open. See the *Working With the System Page Template* section on page 337 for details.
Project Properties	Opens the *Project Properties* dialog, where you can view/edit project/panel and panel setup information. See the *Setting Project Properties* section on page 41 for details.

File Menu (Cont.)	
Save	Saves the active project. The first time you save the project, the Save As dialog is invoked, to allow you to specify the file name/target directory. By default, all project files are saved to AMX Control Disc\TPD4\Panels folder. The target directory that you set here becomes the default target directory for all subsequent project files.
Save As	Opens the *Save As* dialog to allow you to specify a new file name and target directory.
Save As Different Panel Type	Opens the *Save As Different Panel Type* dialog, containing options that allow you to save the active project, configured for a different panel type than was specified when the project was created. See the *Converting a Project to a Different Panel Type* section on page 56 for details.
Import Touch Panel Template	Opens the *Import Touch Panel Template* dialog, where you can select a Touch Panel template file (*.VAT, *.TPT) to import. See the *Importing Template (*.VAT or *.TPT) Files* section on page 325 for details.
Export As VisualArchitect Template	Opens the *Export As VisualArchitect Template* dialog, where you can export the active Project as a VisualArchitect template file (*.VAT). ***Note**: The VisualArchitect application is available for purchase from www.amx.com, and must be installed in order to activate this menu option.* See the *Exporting Your Project as a VisualArchitect Template* section on page 325 for details.
Export As G4 PanelBuilder Template	Opens the *Export As G4 PanelBuilder Template* dialog, where you can exports the active Project as a G4 PanelBuilder template file (*.TPT). ***Note**: The (free) G4 PanelBuilder application is available from www.amx.com, and must be installed in order to activate this menu option.* See the G4 PanelBuilder online help for details.
TPD Conversion Wizard	Launches the *TPD Conversion Wizard*, which guides you through the process of converting pre-G4 (TPDesign3-generated) panel files to TPD4-compatible files. See the *Using the TPD Conversion Wizard* section on page 58 for details.
Print	Opens the *Print* dialog. Use the options in this dialog to select and configure the target printer. The options in this dialog vary, depending on the printer(s) installed on your PC. See the *Printing Pages* section on page 106 for details.
Print Preview	Opens the *Print Preview* window, which displays a preview of how the file will appear on the printed page, based on your printer settings (see *Print Setup*). See the *Print Preview Window* section on page 33 for details.
Print Setup	Opens the *Print Setup* dialog, where you can select and configure the target printer. The options in this dialog vary, depending on the printer(s) installed on your PC.
Exit	Exits TPD4. The program will prompt you to save any unsaved changes before quitting.

Edit Menu

Contains typical Edit menu options plus tool options, and access to the *Preferences* dialog:

Edit Menu	
Selection Tool	Activates the Selection tool. Use this tool to select objects in the Design View windows.
Button Draw Tool	Activates the Button Draw tool. Use this tool to create buttons within the Design View Windows. See the *Button Draw Tools* section on page 122 for details.
Popup Draw Tool	Activates the Popup Draw tool. Use this tool draw Popup Pages directly onto a Page. See the *Using the Popup Draw Tool* section on page 109 for details.
List Box Draw Tool	Activates the List Box Draw tool. Use this tool to create List Box buttons within the Design View Windows. See the *Using the Drawing Tools Toolbar With List Box Buttons* section on page 196 for details.
Grab Properties Tool	Activates the Grab Properties tool. The Grab Properties tool takes a "snapshot" of the properties and values of the Button or Page that is clicked on and open the Property Painter dialog (also accessible through the View menu). See the *Grab Properties and Paint Properties Tools* section on page 233 for details.
Paint Properties Tool	The Grab Properties and Paint Properties tools work together to allow you to grab (copy) the properties and values of a selected Button or Page and apply them to another Button or Page. See the *Grab Properties and Paint Properties Tools* section on page 233 for details.
Show Grid	Enables the grid display on the Design View windows, based on the *Grid Style* and *Grid Color* preferences set in the *Appearance* tab of the Preferences dialog. See the *Preferences Dialog - Appearance tab* section on page 357 for details.
Snap To Grid	Click to automatically snap objects in the Design View windows to the nearest grid lines based on the *Grid Size* and *Snap Tolerance* preferences set in the *Appearance* tab of the Preferences dialog. See the *Preferences Dialog - Appearance tab* section on page 357 for details. ***Note**: Pressing the Ctrl + an arrow key combination will move the selected button one-grid section at a time, regardless of grid visibility or grid snap status. Use Shift + Ctrl + arrow key combinations to resize a button one-grid section at a time.*
Quick Input	Click to open the *Quick Input* sub-menu, where you can select how the Quick Input feature works (*Current Property*, *Text* or *Disabled*). Use Quick Input to make fast edits to various page and button elements and properties. See the *Quick Input* section on page 52 for details.
Undo/Redo	Click to undo/redo the last action. TPD4 lists the action to be undone in this menu item. See the *Undo/Redo* section on page 52 for details.
Cut/Copy/Paste	Click to cut/copy/paste the selected item to/from clipboard memory. See the *Cutting, Copying and Pasting* section on page 51.
Replace	Click to replace state settings for a Page, Popup Page or Button.
Delete	Click to delete the selected object(s).
Rename	Opens the *Rename* dialog, where you can rename the selected Page or Popup Page. See the *Renaming a Page* section on page 94 and *Renaming a Popup Page* section on page 115 for details.
Find	Click to open the *Find* dialog. Use the options in this dialog to search for a set of properties and values in the current Page or across the entire Panel. See the *Searching For Properties* section on page 236 for details.
Find & Replace	Click to open the Find & Replace dialog. The options in this dialog allow property values to be replaced in Buttons or Pages that match the search criteria. See the *Searching and Replacing Properties* section on page 237 for details.
Select All	This option selects all buttons on the active Page.

Edit Menu (Cont.)

Apply To All	This option allows you to set button properties to edit multiple buttons simultaneously. Click once to toggle it on, click it again to turn it off (default = off). The icon shown in the Edit menu indicates whether this option is active (depressed = *active*). This setting affects the *Edit Previous* and *Edit Next* buttons (see below). See the *Using the Apply To All Option* section on page 235 for details.
Edit Previous/Next	The *Edit Previous* and *Edit Next* options are activated only when more than one button is selected on a page, and the *Apply To All* button is off (not depressed). These buttons allow you to quickly edit the selected buttons individually. Hold down the Shift key and click to select multiple buttons. Note that when you have multiple buttons selected, only one of them has the edit focus at any given time. Use the *Edit Previous* and *Edit Next* options to cycle through the selected buttons to view each button's properties in the Properties window. The button represented in the Properties window is the one with edit focus. All modifications are always done on the button with the edit focus. See the *Edit Focus* section on page 50 for details.
Preferences	Opens the *Preferences* dialog, where you can set configure various aspects of the TPD4 program. See the *Program Preferences* section on page 355 for details.

Panel Menu

Contains options for panel-level operations such as page flip verification, access to the System Page template, and page-flip verification:

Panel Menu	
Add Page	Opens the *Add Page* dialog which allows you to add a new page to the project. See the *Adding a Page* section on page 92 for details.
Add Popup Page	Opens the *Add Popup Page* dialog which allows you add a new popup page to the project. See the *Creating a Standard Popup Page* section on page 108 for details.
Edit Sub-Page Sets	Opens the *Edit Sub-Page Sets* dialog which allows you to define new Sub-Page Sets or edit existing sets. See the *Sub-Page Sets* section on page 179 for details.
Resource Manager	Opens the *Resource Manager* dialog. This dialog allows you to organize images and sounds in your project, and the image slots on the target panel. See the *Resource Manager* section on page 61 for details.
Refresh Dynamic Images	Click to refresh all dynamic images. Dynamic images are image files that exist on an HTTP server or FTP server, external to the panel. See the *Working With Dynamic Images* section on page 71 for details.
Set Maximum Icon Slots	Opens the *Maximum Number of Image Slots for Panel* dialog. Image slots represent placeholders in panel memory reserved for image files. See the *Working With Slots* section on page 83 for details.
Edit Palettes	Opens the *Edit Palettes* dialog. Use this dialog to create custom palettes. See the *Working With Colors and Palettes* section on page 309 for details.
Edit List Tables	Opens the *Edit List Tables* dialog. Use the options in this dialog to define List Data Tables, to support List Box Buttons. See the *List Box Buttons* section on page 195 for details.
Export Page Images	Opens the *Export Page Images* dialog which allows one or more Pages in the project to be output as images files. Options for output include filename template, file format (and compression if applicable), exporting the currently displayed state or the “off” state for buttons, and exporting any Popup Pages shown on reference Pages or not. See the *Exporting Pages as Image Files* section on page 105 for details.

Panel Menu (Cont.)

Verify Function Maps	Click to automatically verify that the Function Map for the active project is synchronized with the Project. Any problems that are identified in the Function Map are automatically fixed. See the *Function Code Map* section on page 302 for details.
Verify Page Flips	Click to automatically check the active project for invalid page flips (i.e. a page flip that targets a page that doesn't exist).
Generate Programmers Report	Click to generate a Programmers report that summarizes various aspects of the active Project, in a specified file format. See the *Generating the Programmer's Report* section on page 54 for details.
Send To G4 PanelPreview	Click to launch the G4 PanelPreview application (installed separately) where you can preview the project and simulate push and release of buttons, (including multi-state and bar graph buttons) via the mouse and keyboard on your PC. ***Note**: The G4 PanelPreview application is available from www.amx.com, and must be installed in order to activate this menu option.* See the G4 PanelPreview on-line help for details.

Page Menu

Contains options for adding/deleting pages and popup pages from the project:

Page Menu	
Show Popup Page	With a Popup Page selected in the Workspace Navigator (Pages tab), click the option to display the selected Popup Page in the Design View.
Hide Popup Page	Hides the active popup page.
Hide All Popup Pages	Click to hide all popup pages.
Show External Controls	Click to display external controls (pushbuttons) in the Design View. See the *External Controls View* section on page 23 for details.
Copy Image to Clipboard	Click to copy an image snapshot of the current Design View to the clipboard. This will always include any shown popup pages and will reflect the current display state of buttons.
Create Template Preview Image	Click to open the *Create Template Preview Image* dialog. Use the options in this dialog to create the preview image that is required by G4 PanelBuilder.

Button Menu

Contains options for adding/inserting states on multi-state buttons and for accessing the *Power Assign*, *Animation Wizard* and *Paste Controls* features:

Button Menu	
Reset Display	Resets the button display to the default Off state for the selected button(s) in the Design View.
Display Previous State	Displays the previous state of the selected button (relative to the state currently displayed) in the Design View.
Display Next State	Displays the next state of the selected button (relative to the state currently displayed) in the Design View.
Choose Display State	This option opens the Choose Display State dialog, which allows you to select which state of the selected button to display in the Design View.
Add States	This option opens the Add States dialog, which allows you to add multiple states to the selected button (up to a total of 255 states).
Insert States	This option opens the Insert States dialog, which allows you to insert multiple states to the selected button. This option inserts the specified number of states directly *after* the selected (highlighted) state.
Animation Wizard	This option launches the *Animation Wizard*. The Animation Wizard guides you through the process of creating an animated button. See the *Animation Effects* section on page 315 for details.

Button Menu (Cont.)

Make Unmanaged (Listbox)	This option switches a Managed Listbox to an Unmanaged Listbox (available only if a Listbox button has been selected). See the *List Box Buttons* section on page 195 for details.
Power Assign	Opens the *Power Assign* dialog. Use the options in this dialog to automatically assign function codes. See the *Using Power Assign* section on page 304 for details.
Paste Controls	Opens the *Paste Control Options* dialog, where you can control how the Edit > Paste command works when pasting buttons. See the *Cutting, Copying and Pasting* section on page 51
Preview	Click to show/hide the Button Preview window.

States Menu

Contains options for setting the maximum active state on multi-state buttons, and tweening options:

States Menu	
Reverse States	This option reverses the order of states selected in the State Manager window. The selected state do no have to be contiguous.
Set As Display State	This option sets the selected button state as the state to be displayed on a button push/release. The Display State is treated just like the last state in the sequence. All states beyond the Display State can only be displayed via send commands. ***Note**: All states beyond the designated Display State are displayed in the State Manager window with hash marks across the labels, indicating that they will not be displayed on a button push.*
Tweeners	Click to open the Tweeners sub-menu where you can select from several types of tweeners to use (for animation purposes).

Layout Menu

Contains options for layout/design control (send to front/back, alignment, spacing, etc):

Layout Menu	
Bring to Front	Click to place the selected object(s) on the top layer of the page. The selected objects appear to be in "front" of the other elements on the page.
Send to Back	Click to place the selected object(s) on the bottom layer of the page. The selected objects appear to be in "behind" the other elements on the page.
Shift Button Up	Click to shift the selected objects(s) one layer up on the page. Depending on the degree of layering being used on the page, this may not put the selected objects on the top layer.
Shift Button Down	Click to shift the selected objects(s) one layer down on the page. Depending on the degree of layering being used on the page, this may not put the selected objects on the bottom layer.
Align	Click to view the Align Options sub-menu, containing several types of object alignment tools.
Center in Page	Click to center the selected object(s) on the page.
Make Same Size	Click to view the Make Same Size sub-menu, containing several sizing options.
Size to Image	Click to automatically resize the button to fit the bitmap image.
Size For Video	Click to open the *Size for Video sub-menu*, where you can select to size the selected button to be either a 4:3, 16:9, 1.85:1, or 2.35:1 aspect ratio. These selections automatically apply the associated Video Cropping value to the states of the buttons.
Horizontal Spacing	Click to view the Horizontal Spacing Options sub-menu, containing several spacing options.
Vertical Spacing	Click to view the Vertical Spacing Options sub-menu, containing several spacing options.
Size For Border	Click to view the Size For Border Options sub-menu, containing several auto-sizing options.
Alignment & Sizing	(enabled only if two or more buttons are selected on a page). Click to open the Alignment & Sizing dialog.

Transfer Menu

Contains options for establishing a connection to the NetLinx Master and panels, and for transferring TP4 files to the panels:

Transfer Menu	
Connect	Click to open the Connect dialog, where you can select an established connection to a NetLinx Master, or configure and save a new one.
Disconnect From Master	Click to terminate the current connection to the Master.
Send To Panel	Click to send a panel file to a target panel. This option open the Send To Panel dialog, where you can specify the target panel for the transfer.
Send File To Panel	Click to send any TP4 project file (including locked projects), to a panel without the need to open it first. This option opens the Send File To Panel dialog, where you can select a TP4 project file to send. Once you have selected a file, specify a target panel (in the Send To Panel dialog) and transfer the file, without ever actually opening it in TPD4.
Receive From Panel	Click to receive a panel file from a specified source panel. This option open the Receive From Panel dialog, where you can specify the source panel for the transfer.
Redo Last Transfer	Click to re-execute that last completed transfer.
Cancel Transfer	Select a transfer (in the Transfer Status Window), and select this option to cancel the current selected transfer.
Cancel All Pending Transfers	Click to cancel all pending transfers.
Clear Transfer	Select a complete transfer (in the Transfer Status Window), and select this option to clear the selected transfer.
Clear All Completed Transfers	Click to clear all complete transfers.
Close Status When Empty	Select a complete transfer (in the Transfer Status Window), and select this option to automatically clear the transfer information when the transfer is complete.

View Menu

Contains options for configuring the TPD4 workspace (i.e. toggle toolbars and windows and program customization options):

View Menu	
Toolbars	Click to open the Toolbars sub-menu. containing a list of all of the TPD4 toolbars. Select/de-select to show/hide the toolbars.
Workspace	Click to show/hide the Workspace window.
Properties	Click to show/hide the Properties window.
State Manager	Click to show/hide the State Manager window.
Button Preview	Click to show/hide the Button Preview window.
Magnifier	Click to show/hide the Magnifier window.
Transfer Status	Click to show/hide the Transfer Status window.
Status Bar	Click to show/hide the Status Bar.
Dock All Floating Windows	Click to re-dock any floating toolbars and/or control bars within the main work area.
Property Painter	Click to open the Property Painter dialog.
Display Function Codes & State Overlay	Click to show/hide the function codes and state overlay (indicating the display state) associated with each button in the Design View.

View Menu (Cont.)

Errors & Warnings Report	Click to view the Errors and Warnings reports that result from the process of converting a TPDesign3 project to a TPD4 project via the TPD Conversion Wizard. These reports are displayed in the Error and Warnings Report dialog.
MDI Page Tabs	Click to show/hide the page tabs that indicate each page in the Project (displayed along the bottom edge of the design window).
Customize	Opens the Customize dialog, where you can customize the TPD4 GUI to best suit your specific preferences and needs.

Tools Menu

Allows access to the Microsoft® Paint utility program, and any other external applications that have been added via the options in the Tools tab of the *Customize* dialog.

Tools Menu	
View Readme	Click to open the Readme.TXT file associated with this version of TPDesign4.

Window Menu

Contains options for window control (stack/cascade/put most recent on top):

Window Menu	
Zoom	Click to open the Zoom Control sub-menu, containing options that allow to you control the zoom factor on any pages and popup pages in the workspace. Zoom controls do not affect the size of these elements (in pixels), just the size of their visual representation on the TPD4 work area. • Zoom Out/Zoom In: Use these options to zoom in or out in 25% increments (until you get to 100%, then the increments follow those listed below, up to 400% max). • Fit Page: Zooms in or out on the selected page or popup page, so that it fits the available workspace area (width/height). • Fit Width: Zooms in or out on the selected page or popup page so that it fits horizontally in the available workspace area. • Fit Height: Zooms in or out on the selected page or popup page so that it fits vertically in the available workspace area. • Actual Zoom: This option allows you to see how large a page will appear when displayed on the target panel type. To use this option, you must first specify the monitor's visible size (in the Monitor Size field of the Appearance tab of the Preferences dialog. The monitor size should represent the diagonal measurement of the visible portion of the monitor or of the space occupied by a full-screen image, as opposed to the monitor's overall diagonal size. For example, most 21" monitors typically have between a 19.5" and 20" viewable area. • 25%, 50%, 75%, 100%, 150%, 200%, or 400%: These options allow you to select the desired zoom factor manually. • Custom: Click to open the Custom Window Zoom dialog, where you can specify any zoom percentage, from 25% to 400%. All of these Zoom Control options are also available via the Zoom Toolbar.
Stack	Click to stack all open Design View windows directly on top of the last selected window, so that only the active window is visible.
Cascade	Click to cascade all open Design View windows, with the active window on top.
Open Pages list	At the bottom of the Window menu is a list of all open Design View windows. The active window is indicated by a checkmark. Select a file from this list to make it the active window, and bring it to the front.

Help Menu

Contains options to access the on-line help program, the Readme.TXT file and the *About TPD4* splash-screen as well as access to the Keyboard Map and the WebUpdate application:

Help Menu	
Contents	Launches the on-line help system.
Keyboard Map	Opens the Help Keyboard dialog, which displays the current hotkey assignments (keyboard accelerators) in the application (read-only).
Web Update	Launches the WebUpdate application. WebUpdate keeps your version of TPD4 (and other AMX applications) up-to-date by automatically checking the AMX website for updates. ***Note**: The WebUpdate application is not be installed by TPD4, and must by installed separately. If not found, TPD4 will prompt you to download the application from www.amx.com.*
About TPD4	Opens the TPD4 splash screen, showing the version number of the program.

Align Options sub-menu

Select **Layout** > **Align** to open the Align Options sub-menu:

Align Options sub-menu	
Left	Select two or more objects and select Left to align the left edges of the selected objects.
Horizontal Center	Select two or more objects and select Horizontal Center to align the center points of the selected objects in a horizontal line.
Right	Select two or more objects and select Right to align the right edges of the selected objects.
Top	Select two or more objects and select Top to align the top edges of the selected objects.
Vertical Center	Select two or more objects and select Vertical Center to align the center points of the selected objects in a vertical line.
Bottom	Select two or more objects and select Bottom to align the bottom edges of the selected objects.

Make Same Size sub-menu

Select **Layout** > **Make Same Size** to open the Make Same Size sub-menu:

Make Same Size sub-menu	
Width	Makes the secondary selection match the primary selection in width only.
Height	Makes the secondary selection match the primary selection in height only.
Both	Makes the secondary selection match the primary selection in width and height. Use this option to replicate the dimensions of an existing button.

Horizontal Spacing Options sub-menu

Select **Layout** > **Horizontal Spacing** to open the Horizontal Spacing Options sub-menu:

Horizontal Spacing Options sub-menu	
Equal	Click to apply an equal amount of horizontal space between all selected objects.
Increase	Click to increase the amount of horizontal space between all selected objects.
Decrease	Click to decrease the amount of horizontal space between all selected objects.
Remove	Click to remove all horizontal space between selected objects.

Vertical Spacing Options sub-menu

Select **Layout** > **Vertical Spacing** to open the Vertical Spacing Options sub-menu:

Vertical Spacing Options sub-menu	
Equal	Click to apply an equal amount of vertical space between all selected objects.
Increase	Click to increase the amount of vertical space between all selected objects.
Decrease	Click to decrease the amount of vertical space between all selected objects.
Remove	Click to remove all vertical space between selected objects.

You must have at least three objects selected to use the automatic spacing options.

Size For Border Options sub-menu

Select **Layout** > **Size For Border** to open the Size For Border sub-menu:

Size For Border Options sub-menu	
Ideal	Click to automatically optimize the selected button's border size.
Increase Width By Increment	Click to increase the selected button's border width by a small increment.
Decrease Width By Increment	Click to decrease the selected button's border width by a small increment.
Increase Height By Increment	Click to increase the selected button's border height by a small increment.
Decrease Height By Increment	Click to decrease the selected button's border height by a small increment.

These options are also available via buttons in the Position Assist Toolbar.

Toolbars

The toolbars in TPDesign4 are dockable, so they can be arranged within the application window.

- To undock any toolbar, double-click anywhere inside the toolbar (but not on a toolbar button). Double-click again to dock the toolbar.
- To move the toolbar, click and drag using the handle (the single vertical bar) at the far-left side of the toolbar.
- To view a brief description of each toolbar button, place the mouse cursor directly over a button, without clicking.
- Choose which toolbars to show in the workspace via the **View** > **Toolbars** sub-menu.

  Click **View**, then click in the checkboxes to select/de-select the listed toolbars (including custom toolbars). If a toolbar has a check next to it in the sub-menu, then it is displayed. These settings are saved, so they'll apply the next time the application is launched.

Try placing the Main toolbar vertically, along the right side of the Workspace Window. This configuration is especially efficient in terms of cursor movement back and forth between the toolbar buttons and the Design View Window(s).

Show/Hide Toolbars

You can choose which toolbars to show in the workspace via the **View** > **Toolbars** sub-menu.

Click **View**, then click in the checkboxes to select/de-select the listed toolbars (including custom toolbars). If a toolbar has a check next to it in the sub-menu, then it is displayed. These settings are saved, so they'll apply the next time the application is launched.

Main Toolbar

The Main toolbar contains shortcuts to many of the basic features of the program.

FIG. 2 Main Toolbar

Main Toolbar		
	New File:	Click to launch the *New Project Wizard.* See the *Using the New Project Wizard* section on page 35 for details.
	Open File:	Click to open an existing TPD4 Project file.
	Save File:	Click to save the active project file.
	Send To Panel Preview:	Launches the G4 PanelPreview application (installed separately), where you can preview any version TPD4 panel file, simulate push and release of buttons, including multi-state and bar graph buttons via the mouse and keyboard on your PC. See the *Previewing a Button* section on page 138 for details.
	Cut:	Click to cut the selected object(s) to clipboard memory.
	Copy:	Click to copy the selected object(s) to clipboard memory.
	Paste:	Click to paste the contents of clipboard memory to the active page, at the cursor's location.
	Delete:	Click to delete the selected object(s) from the page.
	Find:	Click to open the *Find* dialog. See the *Searching For Button Properties* section on page 135 for details.
	Find and Replace:	Click to open the *Find & Replace* dialog. See the *Searching For Button Properties* section on page 135 for details.
	Undo:	Click to undo the last action. Click the down-arrow to view a list of recent actions that can be undone. See the *Undo/Redo* section on page 52 for details. ***Note**: Undo/Redo support can be configured via options in the Preferences dialog - Undo/Redo tab - see the Undo / Redo Support* section on page 361 *for details.*
	Redo:	Click to redo the last action. Click the down-arrow to view a list of recent actions that can be redone. See the *Undo/Redo* section on page 52 for details. ***Note**: Undo/Redo support can be configured via options in the Preferences dialog - Undo/Redo tab - see the Undo / Redo Support* section on page 361 *for details.*
	Add Page:	Click to add a new page to the active project. See the *Adding a Page* section on page 92 for details.
	Add Popup Page:	Click to add a new popup page to the active project. See the *Creating a Standard Popup Page* section on page 108 for details.
	Show Popup Pages:	Click to display a selected popup page. See the *Show/Hide Popup Pages* section on page 116 for details.
	Hide Popup Pages:	Click to hide a selected popup page. See the *Show/Hide Popup Pages* section on page 116 for details.
	Hide All Popup Pages:	Click to hide all popup pages. See the *Show/Hide Popup Pages* section on page 116 for details.
	Edit Sub-Page Sets	Click to open the *Edit Sub-Page Sets* dialog. See the *Sub-Page Sets* section on page 179 for details.

Main Toolbar (Cont.)		
	Show External Controls:	Click to show external controls (pushbuttons/LEDs) in the Design View. This feature allows to select pushbuttons for editing purposes. See the *External Controls (Buttons/LEDs)* section on page 161 for details.
	Edit List Tables:	Click to open the *Edit List Tables* dialog. Use the options in this dialog to define List Data Tables, to support List Box Buttons. See the *List Data Tables* section on page 215 for details.
	Resource Manager:	Click to open the Resource Manager dialog. See the *Resource Manager* section on page 61 for details.
	Refresh Dynamic Images:	Click to refresh all dynamic images. Dynamic images are image files that exist on an HTTP server or FTP server, external to the panel. See the *Working With Dynamic Images* section on page 71 for details.
	Edit Palettes:	Click to open the *Edit Palettes* dialog. Use the options in this dialog to customize color palettes (by adding new named colors), and create custom palettes. See the *Working With Colors and Palettes* section on page 309 for details.
	Print:	Click to print all pages in the active project, or any subset thereof (via the **Print Range** option). See the *Printing Pages* section on page 106 for details.

NOTE

Try placing the Main toolbar vertically, along the right side of the Workspace Navigator. This configuration is especially efficient in terms of cursor movement back and forth between the toolbar buttons and the Design View Window(s).

Transfer Toolbar

The Transfer toolbar contains shortcuts to the transfer controls (also available via the Transfer menu).

FIG. 3 Transfer Toolbar

Transfer Toolbar		
	Connect to Master:	Click to connect to a NetLinx Master, to send TP4 panel files to a target panel. This option opens the *Connect* dialog, where you can select an established connection to a NetLinx Master, or configure and save a new one. See the *Connecting to a NetLinx Master* section on page 345 for details.
	Disconnect From Master:	Click to terminate the connection to the NetLinx Master.
	Send To Panel:	Click to send a panel file to a target panel. This option open the *Send To Panel* dialog, where you can specify the target panel for the transfer. See the *Sending a Panel File To a NetLinx Master* section on page 345 for details.
	Receive From Panel:	Click to receive a panel file from a specified source panel. This option open the *Receive From Panel* dialog, where you can specify the source panel for the transfer. See the *Receiving a Panel File From a NetLinx Master* section on page 346 for details.
	Redo Last Transfer:	Click to re-execute that last completed transfer. See the *File Transfer Operations* section on page 343 for details.
	Cancel Transfer:	Click to cancel the current transfer. See the *File Transfer Operations* section on page 343 for details.

View Toolbar

The View toolbar contains shortcuts to the view controls (also available via the View menu).

FIG. 4 View Toolbar

View Toolbar		
	Toggle Workspace:	Click to show/hide the *Workspace* window (page 25).
	Toggle Properties:	Click to show/hide the *Properties* window (page 27).
	Toggle State Manager:	Click to show/hide the *State Manager* window (page 30).
	Toggle Button Preview:	Click to show/hide the *Button Preview* window (page 32).
	Toggle Button Magnifier:	Click to show/hide the *Button Magnifier* window (page 23).
	Toggle Information Overlay:	Click to show/hide the *Function Codes* associated with each button. See the *Working With Function Codes* section on page 301 for details.

Selection/Drawing Tools Toolbar

The Select/Drawing Tools toolbar contains shortcuts to the Selection and Button Draw tools.

Selection/Drawing Tools Toolbar

Selection/Drawing Tools Toolbar		
	Selection Tool:	Click to activate the Selection tool, which allows you to pick/select objects.
	Button Draw Tool:	Click to activate the Button Draw tool, which allows you to "draw" new buttons. Click and hold the Button Draw tool toolbar button to open the drop-down toolbar containing the *Popup Draw tool* and *List Box Draw tool* (see below). See the *Button Draw Tools* section on page 122 for details.
	Popup Draw Tool:	*Click and hold the Button Draw button* to open the drop-down toolbar and select the Popup Draw tool, which allows you to "draw" new popup pages. See the *Using the Popup Draw Tool* section on page 109 for details.
	List Box Draw Tool:	*Click and hold the Button Draw button* to open the drop-down toolbar and select the List Box Draw tool, which allows you to draw new List Box buttons. See the *List Box Buttons* section on page 195 for details.
	Grab Properties Tool:	Click to activate the *Grab Properties* tool, which allows you to copy the properties and values from a Button or Page to the *Property Painter* dialog. Use the *Paint Properties* tool (see below) to apply these properties/values to another Button or Page. See the *Grab Properties and Paint Properties Tools* section on page 233 for details.
	Paint Properties Tool:	Click to activate the *Paint Properties* tool, which allows you to apply the Button or Page properties and values that were copied from another Button or Page (via the Grab Properties tool) to a target Button or Page. See the *Grab Properties and Paint Properties Tools* section on page 233 for details.
	Toggle Grid:	Click to toggle a grid display on the Design View windows. The grid style, size, snap tolerance and color preferences are set in the *Appearance* tab of the *Preferences* dialog. See the *Grid* section on page 358 for details.

Selection/Drawing Tools Toolbar (Cont.)		
	Snap To Grid:	This feature automatically snaps objects in the Design View windows to the nearest grid lines (based on the *Grid Size* and *Snap Tolerance* settings in the *Appearance* tab of the *Preferences* dialog - see the *Preferences Dialog - Appearance tab* section on page 357). • Pressing Ctrl + an arrow key combination will move the selected button one-grid section at a time, regardless of grid visibility or grid snap status. • Use Shift + Ctrl + arrow key combinations to resize a button one-grid section at a time. Note that the grid does not necessarily have to be displayed in order to activate this feature.

Button Display Toolbar

The Button Display toolbar contains shortcuts to the button display controls (also available via the Button menu and the Design View context menu).

FIG. 5 Button Display Toolbar

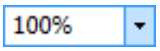
Button Display Toolbar		
	Reset Display:	Resets the button display to the default Off state for the selected button(s).
	Display Previous State:	Displays the previous state of the selected button (relative to the state currently displayed; default = *Off*).
	Display Next State:	Displays the next state of the selected button (relative to the state currently displayed; default = *Off*).
State 2	Display State:	Click the down-arrow to select which state to display for the selected button. If multiple buttons are selected that have a varying number of states, the Display State drop-down will represent the logical intersection of the states for the selected buttons.

Zoom Toolbar

The Zoom toolbar contains shortcuts to the Zoom Controls. Use these options (also available via the **Window > Zoom** sub-menu) to control the zoom factor on the selected page or popup page. The Zoom controls do not affect the actual size of the selected object, only the way it is represented in the workspace area.

FIG. 6 Zoom Toolbar

Zoom Toolbar		
	Full Page:	Automatically adjusts the zoom to show the entire page at 100% size.
	Fit Page:	Automatically adjusts the zoom to fit inside the Design View window.
	Actual Size:	Automatically adjusts the zoom to represent how large a page will appear when actually displayed on the target panel type. To use this option, you must first specify the monitor's visible size in the *Monitor Size* field of the *Appearance* tab of the *Preferences* dialog - see page 357 for details. The monitor size should represent the diagonal measurement of the visible portion of the monitor or of the space occupied by a full-screen image, as opposed to the monitor's overall diagonal size. For example, most 21" monitors typically have between a 19.5" and 20" viewable area.
	Zoom Out:	With a page or popup page selected, click the Zoom Out toolbar button to reduce the *display* size of the selected object, in the increments listed in the Zoom Control drop-down.

Zoom Toolbar (Cont.)		
	Zoom In:	With a page or popup page selected, click the Zoom In toolbar button to increase the *display* size of the selected object, in the increments listed in the Zoom Control drop-down.
	Zoom Control Drop-down:	Click the down-arrow to open the Zoom control options list. Use this list to manually set the zoom to by incremental percentages (*25%, 50%, 75%, 100%, 150%, 200% or 400%), or by Fit Page, Fit Width* or *Fit Height*. The *Custom* option opens the *Custom Window Zoom* dialog, where you can specify any zoom percentage within the range of 25 - 400%.

Drawing Tools Toolbar

The Drawing Tools toolbar contains shortcuts to several of the main drawing tools that control the button type, border style, font, font size, button fill color, border color and text color.

Note that the selections made n the Drawing Tools Toolbar will apply to all newly created buttons. See the *Setting Default New Button Parameters* section on page 126 for details.

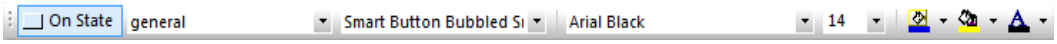
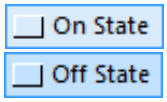
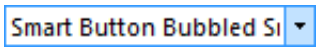
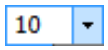


FIG. 7 Drawing Tools Toolbar

Drawing Tools Toolbar		
	On/Off State:	Click to view and select the state-specific button property settings for buttons that are to be created.
	Button Style drop-down:	Click the down arrow to view a list of all available button types. The selected button style will apply to all newly created buttons.
	Border Style drop-down:	Click the down arrow to view a list of all available border styles. The selected border style will apply to all newly created buttons.
	Font type drop-down:	Click the down arrow to view a list of all available fonts. The selected font will apply to all newly created buttons.
	Font size drop-down:	Click the down arrow to view a list of all available fonts sizes. The selected font size will apply to all newly created buttons.
	Border color palette:	Click to select a border color to apply to buttons to be created.
	Fill color palette:	Click to select a fill color to apply to buttons to be created.
	Text color palette:	Click to select a text color to apply to buttons to be created.

The options in this toolbar are enabled only when a Drawing tool is selected.

Because the RGB Color palette supports more colors than the Palette Index, you might see some slight variation in some colors if you switch from the RGB Color palette to Palette Index. In most cases, any variation that occurs in the translation is subtle, since TPD4 tries to match the color exactly.

Order Assist Toolbar

The Order Assist Tool toolbar contains shortcuts to control options for controlling the layering order of existing buttons.

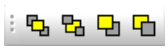


FIG. 8 Order Assist Toolbar

Order Assist Toolbar		
	Send to Front:	Click to bring the selected object(s) to the front (or top) layer, so that they appear to be in "front" of the other objects on the page.
	Send to Back:	Click to send the selected object(s) to the back (or bottom) layer, so that they appear to be "behind" the other objects on the page.
	Shift Up:	Click to shift the selected object(s) *one layer* up on the page. Depending on the amount of layering, this may or may not place the object(s) on the "Front" or top level of the page.
	Shift Down:	Click to shift the selected object(s) *one layer* down on the page. Depending on the amount of layering, this may or may not place the object(s) on the "Back" or bottom level of the page.

Position Assist Toolbar

The Position Assist toolbar contains shortcuts to many layout control options for controlling various placement elements of existing buttons.

FIG. 9 Position Assist Toolbar

Position Assist Toolbar		
	Align Left:	With two or more objects selected, click to align the left edges of the selected objects.
	Align Horizontal Center:	With two or more objects selected, click to distribute the center points of the selected objects in a horizontal line.
	Align Right:	With two or more objects selected, click to align the right edges of the selected objects.
	Align Top:	With two or more objects selected, click to align the top edges of the selected objects.
	Align Vertical Center:	With two or more objects selected, click to distribute the center points of the selected objects in a vertical line.
	Align Bottom:	With two or more objects selected, click to align the bottom edges of the selected objects.
	Center Horizontal:	With one or more objects selected, click to center the object horizontally, relative to the page. With multiple objects selected, click to center the objects horizontally as a group.
	Center Vertical:	With one or more objects selected, click to center the object vertically, relative to the page. With multiple objects selected, click to center the objects vertically as a group.
	Equal Horizontal Spacing:	With three or more objects selected, use this option to automatically distribute the objects with an equal amount of horizontal space between them.
	Increase Horizontal Spacing:	With three or more objects selected, use this option to increase the amount of horizontal space between them. Use this option in conjunction with the *Equal Horizontal Spacing* option to quickly align and distribute objects horizontally on the page.

Position Assist Toolbar (Cont.)		
	Decrease Horizontal Spacing:	With three or more objects selected, use this option to decrease the amount of horizontal space between them. Use this option in conjunction with the *Equal Horizontal Spacing* option to quickly align and distribute objects horizontally on the page.
	Remove Horizontal Spacing:	With three or more objects selected, use this option to remove all horizontal space between them.
	Equal Vertical Spacing:	With three or more objects selected, use this option to automatically distribute the objects with an equal amount of vertical space between them.
	Increase Vertical Spacing:	With three or more objects selected, use this option to increase the amount of vertical space between them. Use this option in conjunction with the *Equal Vertical Spacing* option to quickly align and distribute objects horizontally on the page.
	Decrease Vertical Spacing:	With three or more objects selected, use this option to decrease the amount of vertical space between them. Use this option in conjunction with the *Equal Vertical Spacing* option to quickly align and distribute objects horizontally on the page.
	Remove Vertical Spacing:	With three or more objects selected, use this option to remove all vertical space between them.

Size Assist Tools Toolbar

The Size Assist Tools toolbar contains shortcuts to many layout control options for controlling various size elements of existing buttons.

FIG. 10 Size Assist Tools Toolbar

Size Assist Tools Toolbar		
	Make Same Width:	With two or more objects selected, click to adjust the objects to match the width of the first object selected. Select the object with the desired width first, then select the object(s) that you want to resize to match.
	Make Same Height:	With two or more objects selected, click to adjust the objects to match the height of the first object selected. Select the object with the desired width first, then select the object(s) that you want to resize to match.
	Make Same Size:	With two or more objects selected, click to adjust the objects to match the size (height/width) of the first object selected. Select the object with the desired size first, then select the object(s) that you want to resize to match.
	Size To Fit Image:	This option automatically resizes the selected button(s) to accommodate the largest bitmap or icon contained within the selected button(s).
	Size for Video:	When using a video fill button, use this option to specify an aspect ratio to apply to the selected button.
	Make Ideal For Border:	This option automatically resizes the selected object(s) to the optimal size relative to the border style that is applied. For example, a thick complex border requires more space to be rendered than a thin line border. This option would automatically stretch a small button to a the smallest size that is required to render the selected border style.
	Increase Width For Border:	This option incrementally increases the width of the selected object.
	Decrease Width For Border:	This option incrementally decreases the width of the selected object.

Size Assist Toolbar (Cont.)		
	Increase Height For Border:	This option incrementally increases the height of the selected object.
	Decrease Height For Border:	This option incrementally decreases the height of the selected object.

List Box Tools Toolbar

The List Box Tools toolbar contains shortcuts to the Add Row/Column and Delete Row/Column tools, to assist with List Box Buttons. See the *List Box Buttons* section on page 195 for details.

FIG. 11 List Box Tools Toolbar

List Box Tools Toolbar		
	Add Row:	Click to add a row to the selected List Box Button.
	Add Column:	Click to add a column to the selected List Box Button.
	Delete Row:	Click to delete the last row from a selected List Box Button.
	Delete Column:	Click to delete the selected column from a selected List Box Button.

Design View Windows

Design View windows represent pages or popup pages in the panel file you are creating. They provide a canvas upon which you may place and arrange buttons (FIG. 12).

FIG. 12 Design View Windows

- Since Design View windows represent the pages on the panel themselves, Design Views that represent pages are not resizable. Use the Zoom and Magnifier Window features to control the size of the view.
- Popup pages are resizable through the Properties Window by adjusting their Left, Top, Width or Height properties. Alternatively, you can set their size and dimensions manually by first enabling the Show Popup Page option in the Page menu. Once the Popup is displayed on the page, you can click and drag to resize and position it manually.
- Select the **Toggle Information Overlay** toolbar button (in the View toolbar) to display function codes associated with each button (see the *Working With Function Codes* section on page 301 for details).
- Use the **View > MDI Page Tabs** option to toggle the page tabs. When this option is enabled, a tab is displayed for each open page. The page tabs normally appear along the bottom edge of the Design View window area, but can be moved, toggled or modified via the MDI tabs context menu (right-click inside any of the tabs).

  TPD4 will display up to a maximum of 15 page tabs. If you open more than 15 pages, only the most recently opened 15 pages will remain open (the others will be automatically closed). No data will be lost, only the view is closed. See the *Design View Window MDI Tab Controls* section on page 22 for details.
- Right mouse click anywhere within a Design View window to open the Design View context menu. This context menu contains shortcuts to many key design tools. See *Design View Windows* section on page 19.
- Select **Display** from the Design View context menu to access the Display sub-menu, containing options that allow you to select which state of a selected button to display in the Design View.
- Select **Layout** from the Design View context menu to access the Layout sub-menu, containing options for layout/design control (send to front/back, align, center, etc). This menu is identical to the Layout menu, accessible from the main menu bar.
- Right mouse click anywhere within a Design View window to open the Design View context menu. This context menu contains shortcuts to many key design tools.

Design View Window context menu

Right mouse click anywhere within a Design View window to open the Design View context menu. This context menu contains shortcuts to many key design tools:

Design View Window context menu	
Selection Tool	Activates the *Selection* tool. Use this tool to select objects in the Design View windows.
Button Draw Tool	Activates the *Button Draw* tool. Use this tool to draw buttons in the current Design View Window.
Popup Draw Tool	Activates the *Popup Draw* tool. Use this tool draw Popup Pages in the current Design View Window.
List Box Draw Tool	Activates the *List Box Draw* tool. Use this tool draw Popup Pages in the current Design View Window.
Grab Properties Tool	Activates the *Grab Properties* tool. The Grab Properties tool takes a "snapshot" of the properties and values of the Button or Page that is clicked on and open the *Property Painter* dialog (also accessible through the View menu).
Paint Properties Tool	The *Grab Properties* and *Paint Properties* tools work together to allow you to grab (copy) the properties and values of a selected Button or Page and apply them to another Button or Page.
Show Grid	Enables the grid display on the Design View windows, based on the *Grid Style* and *Grid Color* preferences set in the *Appearance* tab of the *Preferences* dialog (see page 357).
Snap To Grid	Click to automatically snap objects in the Design View windows to the nearest grid lines.
Quick Input	Click to open the *Quick Input* sub-menu, where you can specify how to use the Quick Input feature works (*Current Property*, *Text* or *Disabled*). Use Quick Input to make fast edits to various page and button elements and properties. See the *Quick Input* section on page 52 for details.
Cut/Copy/Paste	Click to cut/copy/paste the selected item to/from clipboard memory.

Design View Window context menu (Cont.)	
Delete	Click to delete the selected object(s).
Find	Click to open the *Find* dialog. Use the options in this dialog to search for a set of properties and values in the current Page or across the entire Panel. See the *Searching For Properties* section on page 236 for details.
Find and Replace	Click to open the Find & Replace dialog. The options in this dialog allow property values to be replaced in Buttons or Pages that match the search criteria. See the *Searching and Replacing Properties* section on page 237 for details.
Select All	This option selects all buttons on the active Page.
Apply To All	This option allows you to set button properties to edit multiple buttons simultaneously. Click once to toggle it on, click it again to turn it off (default = off). The icon shown in the Edit menu indicates whether this option is active (depressed = *active*). This setting affects the *Edit Previous* and *Edit Next* buttons (see below). See the *Using the Apply To All Option* section on page 235 for details.
Edit Previous/Next	The *Edit Previous* and *Edit Next* options are activated only when more than one button is selected on a page, and the *Apply To All* button is off (not depressed). These buttons allow you to quickly edit the selected buttons individually. Hold down the Shift key and click to select multiple buttons. ***Note**: When you have multiple buttons selected, only one of them has the edit focus at any given time. Use the Edit Previous and Edit Next options to cycle through the selected buttons to view each button's properties in the Properties window. The button represented in the Properties window is the one with edit focus. All modifications are always done on the button with the edit focus.*
Display	Click to access the Display sub-menu, containing options that allow you to select which state of a selected button to display in the Design View: • *Reset Display*- This option resets the Display View to show only the first state on all buttons (the default view). • *Display Previous State* - This option displays the previous state of the selected button. The state displayed depends on the state currently displayed. This option is disabled if the first state of the button is being displayed. • *Display Next State* - This option displays the next state of the selected button. The state displayed depends on the state currently displayed. This option is disabled if the last state of the button is being displayed. • *Choose Display State* - This option opens the Choose Display State dialog, where you can select which state to display from a list of available states for a selected button.
Layout	Click to access the Layout sub-menu, which is identical to the Layout menu (see page 7).
Hide Popup Page	Hides the popup page selected in the *Pages* tab of the Workspace Navigator.
Hide All Popup Pages	Select to hide all popup pages in the Design View.
Show External Controls	Click to display external controls (pushbuttons) in the Design View.
Copy Image To Clipboard	Click to copy an image snapshot of the current Design View to the clipboard. This will always include any shown popup pages and will reflect the current display state of buttons.
Create Template Preview Image	Click to open the *Create Template Preview Image* dialog. Use the options in this dialog to create the preview image that is required by G4 PanelBuilder.

Design View Window context menu (Cont.)	
Zoom	Click to access the Zoom sub-menu (which contains the same functionality as the Zoom toolbar): • *Zoom Out/In*: With a page or popup page selected, select Zoom Out or Zoom In to reduce or increase the display size of the selected object, in the increments listed in the Zoom sub-menu. • *Fit Page/Width/Height*: With a page or popup page selected, select Fit Page, Fit Width or Fit Height to adjust zoom setting. Fit Page adjusts the zoom setting to show the entire Page. Fit Width adjusts the zoom setting to show the entire width of the selected item, and Fit Height shows the entire height of the selected item. • *Zoom Increments*: Select a zoom increment to specify the zoom setting • *Custom*: Click to open the Custom Window Zoom dialog, where you can specify any zoom percentage within the range of 25 - 400%.

Design View Window MDI Tab Controls

Each panel page that you open is shown in its own Design View window for editing. By default, each of these windows has its own page tab (normally appearing along the bottom edge of the Design View window area) that shows the Page name (FIG. 13). Use these tabs to easily flip from page to page, once you have several pages open.

FIG. 13 Design View Windows - MDI tabs

- In TPD4, these page tabs are referred to as "MDI tabs", and they can be toggled on/off via the **View > MDI Page Tabs** option.
- TPD4 displays a maximum of 10 page tabs.
- Right-click inside any of the page tabs to access the following context menu:

Design View Window MDI Tab Context Menu Options	
Close Page	Click to close *only* the page associated with the page tab that the context menu was opened from (this does *not* close the active page).
Close All Pages in Panel	Click to close all open pages in the panel file.
Close All Pages	Click to close every open page.
Close All Pages in Panel Except	Click to close all open pages in this panel, except the page that currently has edit focus.
Close All Pages Except	Click to close all open pages except the page that currently has edit focus.
Tab Icons	Click to hide/show the icons that appear in the tabs by default. These page icons match the color of the icon associated with the parent project in the Workspace Navigator (Pages tab). Use them as a quick visual indication of which project each open page belongs to.
Show Panel Name	Click to display the panel name prior to the page name on the tab.
Tabs on Top	Click to move the page tabs to the top of the Design View windows area.
Tabs at Bottom	Click to move the page tabs to the bottom of the Design View windows area (default position).
Hide Tabs	Click to hide the page tabs.

Using the Zoom Controls

The Zoom toolbar contains shortcuts to the main Zoom Controls (FIG. 14). Use these options to control the zoom factor on the selected page or popup page.

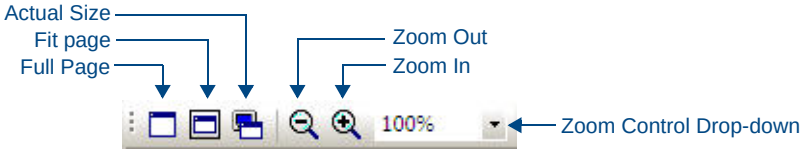


FIG. 14 Zoom toolbar

Zoom controls do not affect the actual size of the selected object, only the way it is represented in the workspace area. See the *Zoom Toolbar* section on page 15 for descriptions of all Zoom Control options.

Additional Zoom options are available via the **Window > Zoom** submenu:

Zoom SubMenu Controls	
Fit Width	Automatically adjusts the zoom to accommodate the width of the selected object inside the Design View window.
Fit Height	Automatically adjusts the zoom to accommodate the height of the selected object inside the Design View window.
Custom	Opens the Custom Window Zoom dialog, where you can specify any zoom percentage within the range of 25 - 400% (in 1-percent increments).

Button Magnifier Window

The *Button Magnifier* window allows you to magnify a given area of a design view for temporary viewing in a separate floating window, without zooming the entire design view (FIG. 15):

FIG. 15 Button Magnifier WIndow

Select **View > Magnifier Window** (or click the toolbar button) to access the Magnifier Window.

- Right-click inside the Magnifier window to access the Magnify Control context menu, where you can select a zoom factor from 2 to 8 times actual size.
- This floating window is resizable and dockable.

External Controls View

With a Panel selected in the Workspace window, double-click on the *External Controls* option to display a Design View window that includes the External Buttons present on that panel or remote (FIG. 16):

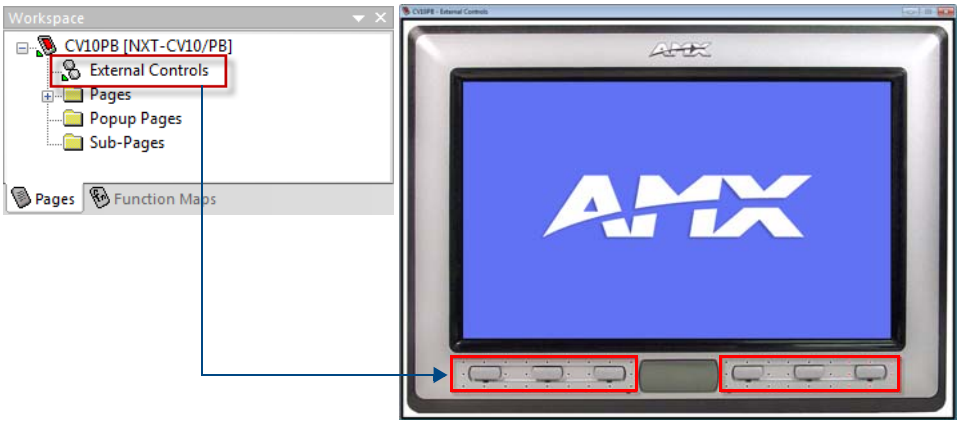


FIG. 16 Workspace (Pages tab) - External Controls

- If a panel that does not have external controls is selected, this option is not presented.
- For panels that support *Gestures*, the External Control view indicates any external button/LEDs as well as a series of Gesture Control buttons along the top of the Design View window (according to the selected panel type).

Gesture Control buttons allow you to specify button properties to Gestures, in a way that is similar to that of setting properties for other button types. See the *Gesture Controls* section on page 167 for more information.

FIG. 17 shows that the MVP-9000i and the MXT-1900L-PAN indicate a row of *Gesture Control* buttons above the image of the panel:

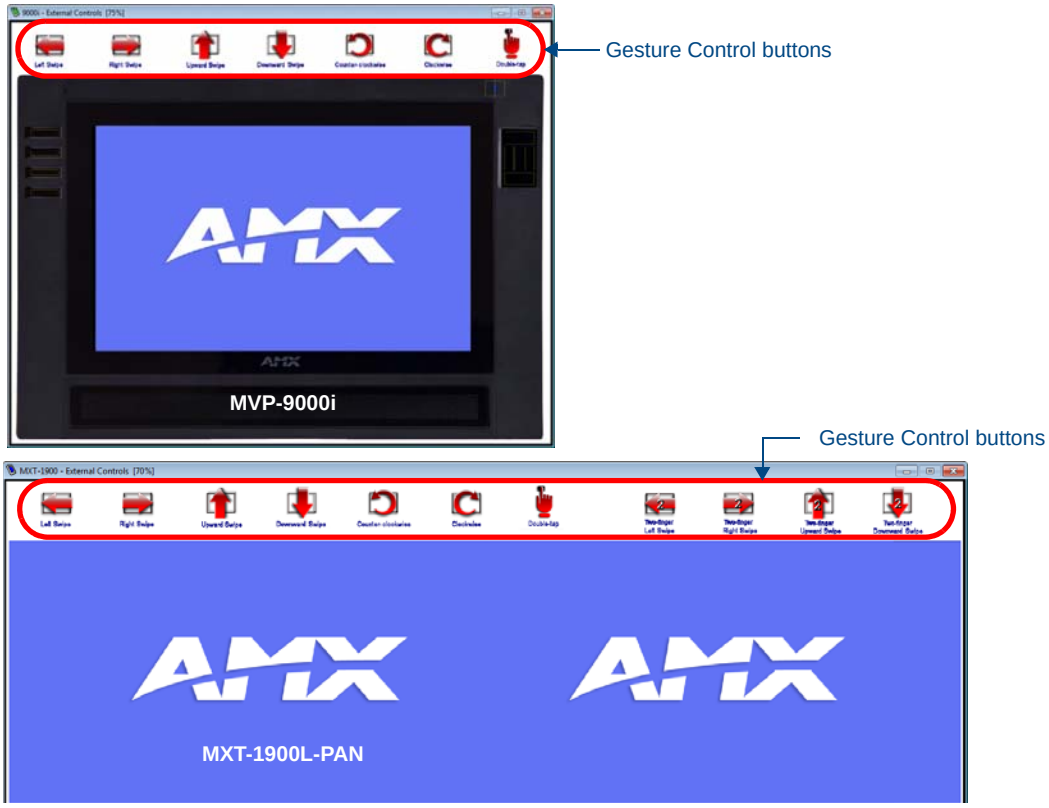


FIG. 17 Design View Windows - External Controls View

Workspace Window

The Workspace Window is used to open the pages / popup pages in the file (establishing edit focus), and to view/edit the function codes associated with each page.

The Workspace Window contains two tabs: **Pages** and **Function Maps**.

Workspace Window- Pages Tab

Click the Pages tab (at the bottom of the Workspace window) to view the pages/popup pages contained within each open Project, in the Workspace window. Use the Pages tab of the Workspace window to view/open and rename panel pages.

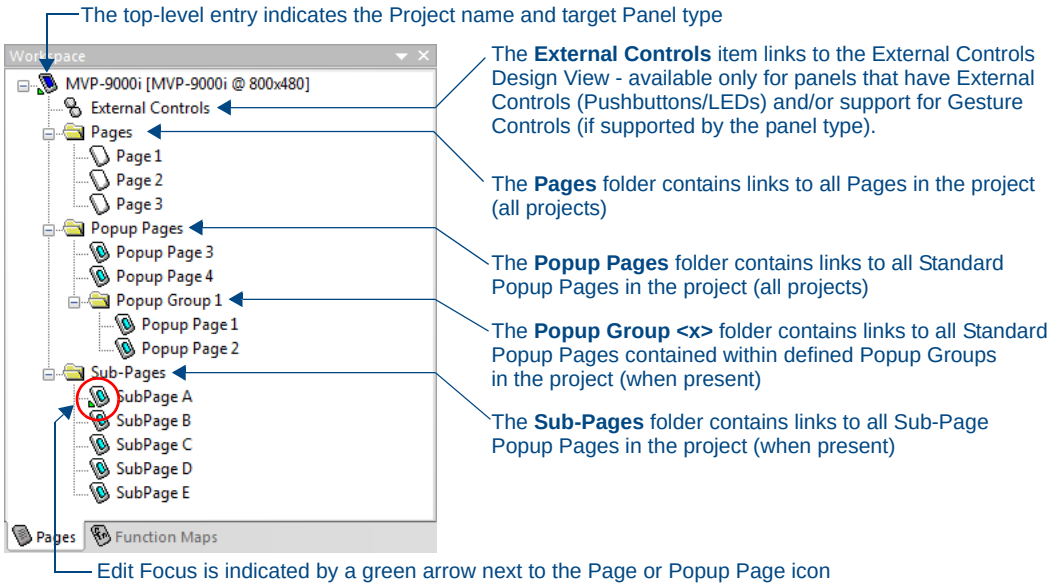

The top-level entry indicates the Project name and target Panel type
Workspace
MVP-9000i [MVP-9000i @ 800x480]
External Controls
Pages
Page 1
Page 2
Page 3
Popup Pages
Popup Page 3
Popup Page 4
Popup Group 1
Popup Page 1
Popup Page 2
Sub-Pages
SubPage A
SubPage B
SubPage C
SubPage D
SubPage E
Pages
Function Maps
The External Controls item links to the External Controls Design View - available only for panels that have External Controls (Pushbuttons/LEDs) and/or support for Gesture Controls (if supported by the panel type).
The Pages folder contains links to all Pages in the project (all projects)
The Popup Pages folder contains links to all Standard Popup Pages in the project (all projects)
The Popup Group <x> folder contains links to all Standard Popup Pages contained within defined Popup Groups in the project (when present)
The Sub-Pages folder contains links to all Sub-Page Popup Pages in the project (when present)
Edit Focus is indicated by a green arrow next to the Page or Popup Page icon

FIG. 18 Workspace Window- Pages Tab

Workspace Window- Pages Tab	
Project folder	The top-level entry for each open project is the Project Name and [Panel Type] entry. Each open Project is represented by a separate folder (each one with a different colored panel icon). • Project- level information can be edited via the *Project Properties* dialog (see the *Project Properties dialog - Project Information tab* section on page 41). • See the *Working With Project (*.TP4) Files* section on page 37.
External Controls	This item links to the External Controls Design View for the panel - available only for panel types that support External Controls (Pushbuttons/LEDs) and/or Gestures. • See the *External Controls (Buttons/LEDs)* section on page 161 for details. • See the *Gesture Controls* section on page 167 for details.
Pages folder	Contains links to all Pages defined in the project. See the *Working With Pages* section on page 91 for details.
Popup Pages folder	Contains links to all Standard Popup Pages defined in the project. See the *Popup Pages* section on page 107 for details.
Popup Group <x> folder	Each folder represents a Popup Group that has been defined in the project. See the *Popup Page Groups* section on page 113 for details.
Sub-Pages folder	Contains links to all Sub-Page Popup Pages defined in the project. • See the *Sub-Pages* section on page 119 for details. • Sub-Page Popups are used to create Scrolling Regions. See the *Scrolling Regions* section on page 173 for details.

- Edit focus is indicated by a small arrow at the lower-left corner of the icon for the selected panel, page or popup page ("Sub-Page A" in FIG. 18).
- Right-click anywhere within the Pages tab to access the Workspace Navigator context menu.
- There are several actions that you can do simply by selecting an item in the tree and choosing the appropriate command or toolbar button:
  - Opening Pages/Popup Pages Via the Workspace Window (see *Opening a Page* on page 95).
  - Renaming a Page (see *Renaming a Page* on page 94)
  - Drag and Drop Support (see the *Drag and Drop Support* section on page 50).

Opening Pages/Popup Pages Via the Workspace Window

You can open a page or popup page in the active Project by double-clicking on the Page or Popup Page in the Workspace Window (Pages tab).

Workspace Window- Function Maps Tab

Click the **Function Maps** tab (at the bottom of the Workspace Window) to view the Function Code Map (FIG. 19).

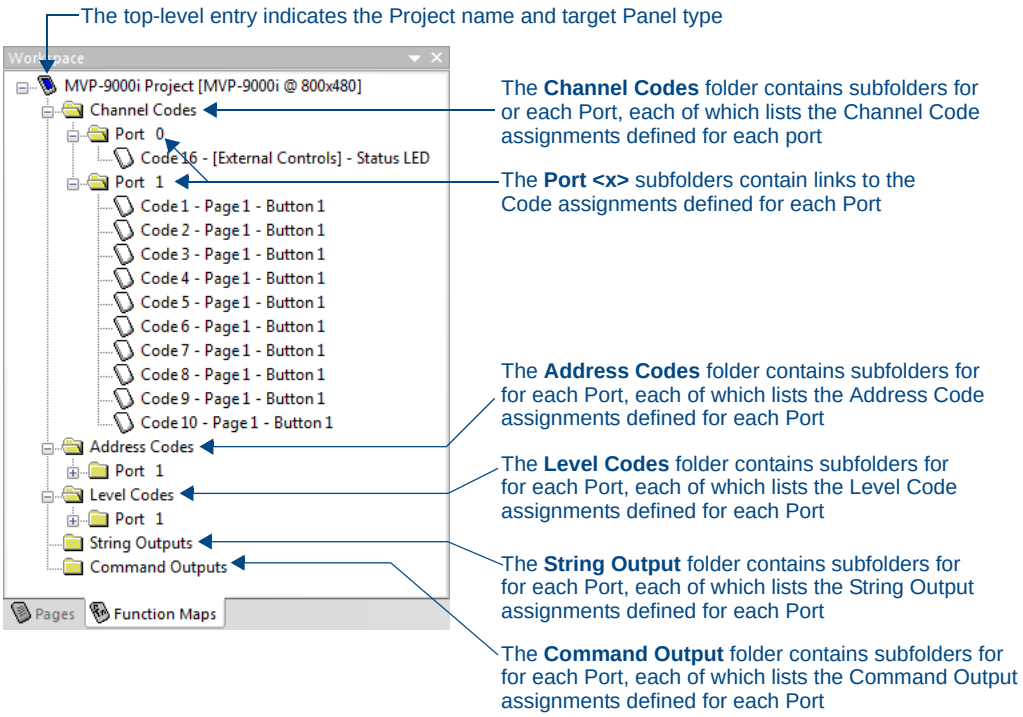

The top-level entry indicates the Project name and target Panel type
MVP-9000i Project [MVP-9000i @ 800x480]
Channel Codes
Port 0
Code 16 - [External Controls] - Status LED
Port 1
Code 1 - Page 1 - Button 1
Code 2 - Page 1 - Button 1
Code 3 - Page 1 - Button 1
Code 4 - Page 1 - Button 1
Code 5 - Page 1 - Button 1
Code 6 - Page 1 - Button 1
Code 7 - Page 1 - Button 1
Code 8 - Page 1 - Button 1
Code 9 - Page 1 - Button 1
Code 10 - Page 1 - Button 1
Address Codes
Port 1
Level Codes
Port 1
String Outputs
Command Outputs
Pages
Function Maps
The Channel Codes folder contains subfolders for or each Port, each of which lists the Channel Code assignments defined for each port
The Port <x> subfolders contain links to the Code assignments defined for each Port
The Address Codes folder contains subfolders for for each Port, each of which lists the Address Code assignments defined for each Port
The Level Codes folder contains subfolders for for each Port, each of which lists the Level Code assignments defined for each Port
The String Output folder contains subfolders for for each Port, each of which lists the String Output assignments defined for each Port
The Command Output folder contains subfolders for for each Port, each of which lists the Command Output assignments defined for each Port

FIG. 19 Workspace Window - Function Maps Tab

The Function Code Map is a representation of the Channel codes, Address codes, Level codes, String Outputs and Command Outputs utilized in the panel file, displayed in a hierarchical tree format in the Function Map tab of the Workspace Window.

This list is sorted by Port, and within Port by Code.

See the *Working With Function Codes* section on page 301 for details.

Properties Window

The Properties Window is used to view/edit page, popup page and button properties, and to view/edit the states information associated with each element in your project.

Select **View > Properties** (or click the toolbar button) to display the Properties window (FIG. 20).

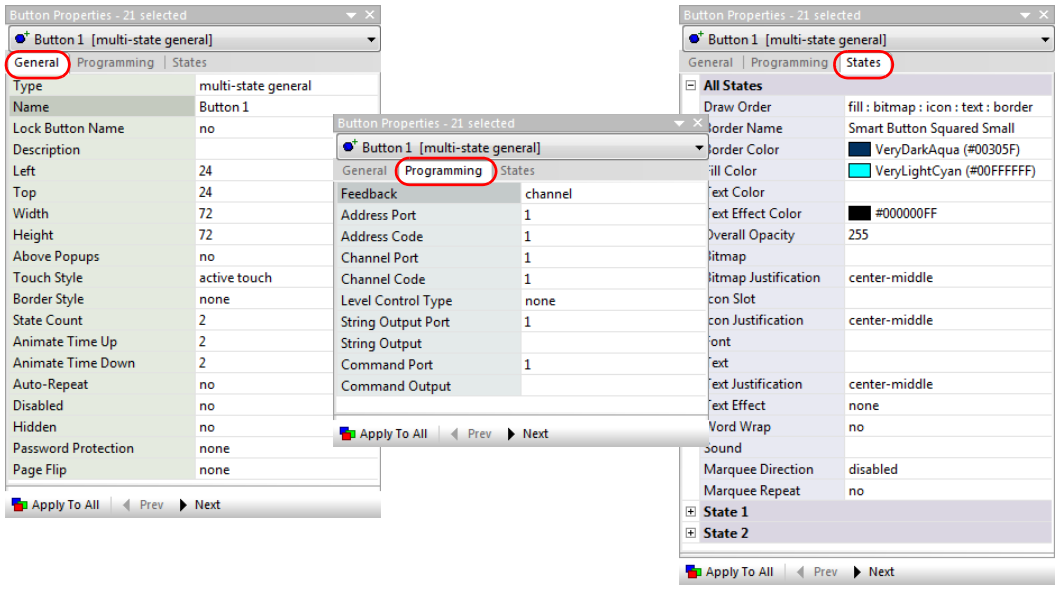


FIG. 20 Properties Window - General, Programming and States tabs

The Properties Window contains three tabs: *General*, *Programming* and *States*. Use these tabs to view and edit properties for the selected Page, Popup Page or Button.

To edit properties, select a Page, Popup Page or Button either in the Workspace window or in a Design View window to populate the Properties window with properties specific to the selected element. Edit the property by selecting from a drop-down menu, or by entering a value in to the property field, depending on the property type.

- The title bar of the Properties window indicates which element of the workspace is currently selected.
- If one or more buttons are selected in the Workspace, the title bar of the Properties window indicates the number of buttons selected.
- Button names and types are displayed in the text box above the tabs (in the example below, the selected button is named "*Home*", and the button type is *general*. Click the down arrow next to this field to view a list of all buttons on the active page.
- Selecting a button from this list is the same as selecting it in a Design View window: the edit focus shifts to the selected button, and the Properties window reflects the properties of the newly selected button.

Properties Window - General Tab

Click the **General** tab (at the top of the Properties Window) to set/edit general properties for all button types. The General tab contains a table that lists the button properties for the selected button type (FIG. 21).

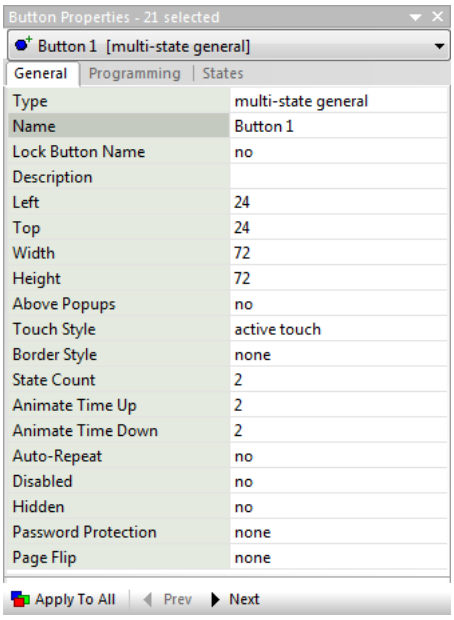


FIG. 21 Properties Window - General Tab

- The General properties presented will depend on the type of element selected (i.e. Page, Standard Popup page, Sub-Page Popup Page, External Control Button, Gesture Control Button, or other supported Button Type).
- To edit General properties, select an element either in the Workspace window or in a Design View window to populate the General tab with properties specific to the selection. Edit the property by selecting from a drop-down menu, or by entering a value in to the property field, depending on the property type.
- See the *General Properties* section on page 238 for descriptions of all General properties.

Properties Window - Programming Tab

Click the **Programming** tab (at the top of the Properties Window) to view/edit programming-related information for the selected button. This information is displayed in a table format, similar to the General tab (FIG. 22).

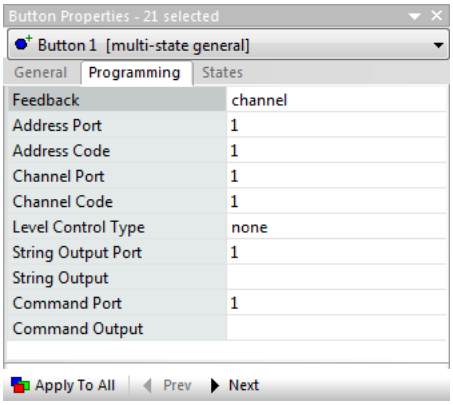


FIG. 22 Properties Window - Programming Tab

- The Programming properties presented will depend on the type of element selected (i.e. Page, Standard Popup page, Sub-Page Popup Page, External Control Button, Gesture Control Button, or other supported Button Type).

- To edit Programming properties, select an element either in the Workspace window or in a Design View window to populate the Programming tab with properties specific to the selection. Edit the property by selecting from a drop-down menu, or by entering a value in to the property field, depending on the property type.
- See the *Programming Properties* section on page 254 for descriptions of all Programming properties.

Properties Window - States Tab

Click the **States** tab (at the top of the Properties Window) to view/edit the state information for each state associated with the selected button. This information is displayed in a table that lists the properties for each state for the selected button (FIG. 23).

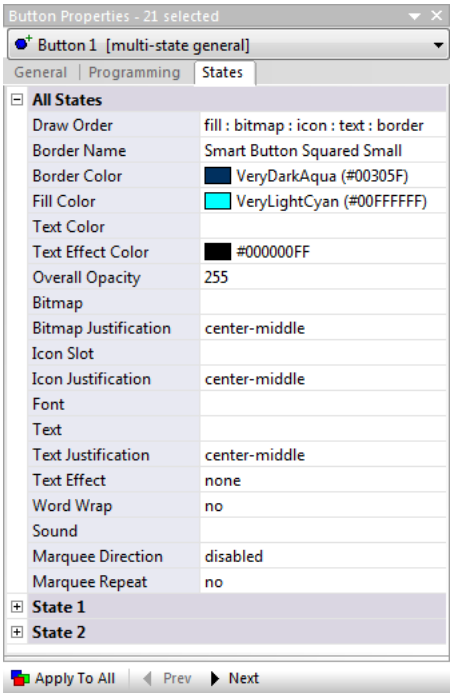


FIG. 23 Properties Window - States Tab

All position (X-Y) values in TPD4 are zero-based (measured in pixels), meaning that the upper-left corner of each page is represented by the X-Y value of 0, 0.

- The State properties presented will depend on the type of element selected (i.e. Page, Standard Popup page, Sub-Page Popup Page, External Control Button, Gesture Control Button, or other supported Button Type).
- To edit State properties, select an element either in the Workspace window or in a Design View window to populate the General tab with properties specific to the selection. Edit the property by selecting from a drop-down menu, or by entering a value in to the property field, depending on the property type.
- See the *State Properties* section on page 285 for descriptions of all General properties.

For more information on using the Properties window, see the *Working With Properties* section on page 233.

State Manager Window

The State Manager is typically located along the bottom edge of the screen (although it is a dockable window and you may move it anywhere you like) and is used to view/edit the various states of a selected button. Each state of the selected button is displayed as a thumbnail image in this window. To display the State Manager window, select **View > State Manager** (FIG. 24).

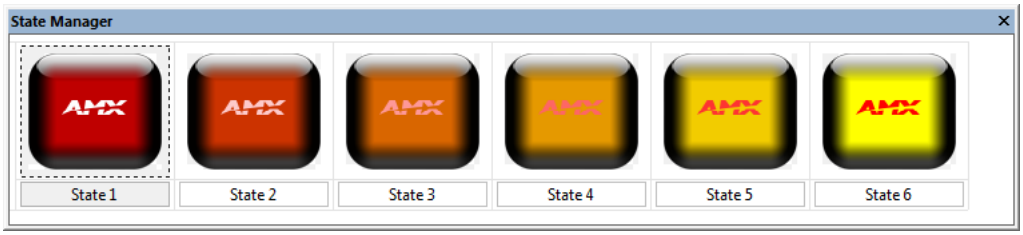


FIG. 24 State Manager Window

The State Manager interacts with the Properties window to allow the visual aspects of a page, popup page or button to be set. Select a Page, Popup page or button to view the state or states associated with it. Double-click on any thumbnail in the State Manager window to view/edit the properties for the selected state, in the Properties window (States tab).

The State Manager window allows the viewing and modification of individual states, and supports full Cut, Copy, Delete, Insert, Replace and Paste as well as drag and drop capabilities.

Right mouse click on any thumbnail to open the State Manager context menu, which includes options to *Add* single or multiple states, *Replace* states, *Insert* single or multiple states and *Remove* states.

- For Multi-General buttons, the different states (up to 256) are used to animate a button from Off to On (**Range Time Up** in the States tab), and back again to Off (**Range Time Down** in the States tab). When the button is turned on it will display all the assigned states from first to last with a specified time interval between each state's display. When the button is turned back off, the states will be displayed in reverse order. The interstate time intervals are user definable in 1/10th second increments. A zero entry will automatically advance / retreat to the ending / beginning state without displaying any intervening states.
- For Multi-Bargraph buttons, the level will directly reflect the displayed state. The user will be able to set an allowable range within a bargraph that has states. Anything outside of that range will not be represented by a state.
- For buttons with multiple states, Send Commands can set the state number provided it is not a level type button.

Note that because the thumbnails displayed in the State Manager window are scaled versions of the button images, some visual distortion may occur. This is only a result of the scaling, and does not represent distortion on the button itself.

State Manager Context Menu

Right mouse click on any thumbnail in the State Manager window to open the State Manager context menu, which includes options to add single or multiple states, replace states, insert single or multiple states, and remove states.

State Manager Context Menu

Right mouse click on any thumbnail in the State Manager window to open the State Manager context menu, which includes options to add single or multiple states, replace states, insert single or multiple states, and remove states.

- Use Ctrl+click to select multiple individual button states.
- Use Shift+click to select a range of states (between two selections).
- Use Ctrl+A to select all button states.

The items in this context menu include:

State Manager Context Menu	
Size	This option sets the size of the button thumbnail views as they appear in the State Manager window.
Add States	This option opens the *Add States* dialog, which allows you to add multiple states to the selected button (up to a total of 255 states). See the *Add States* section on page 294 for details.
Insert States	This option opens the *Insert States* dialog, which allows you to insert multiple states to the selected button. This option inserts the specified number of states directly after the selected (highlighted) state. See the *Insert States* section on page 294 for details.
Quick Input	Click to open the *Quick Input* sub-menu, where you can specify how to use the Quick Input feature (*Current Property*, *Text* or *Disabled*). Use Quick Input to make fast edits to various page and button elements and properties.
Cut/Copy/Paste	Use these options to either cut, copy or paste a selected button state to/from clipboard memory. See the *Copying/Pasting States* section on page 295 for details.
Replace	Use this option to replace the selected button state with the contents of clipboard memory. See the *Replacing States* section on page 296 for details.
Delete	Use this option to delete the selected button state(s) from the button. See the *Deleting States* section on page 297 for details.
Select All	This option selects all states associated with the selected button.
Reverse States	This option reverses the order of states selected in the State Manager window. The selected states do no have to be contiguous.
Set As Display State	This option sets the state that is currently being displayed in the Design View as the display state for the button.
Image/Text Positioning	This option opens the Text/Image Position dialog, which allows you to specify the position of images and/or text on the selected button state(s).
Animation Wizard	This option launches the *Animation Wizard*. The Animation Wizard guides you through the process of creating an animated button. See the *Animation Effects* section on page 315 for details.
Tweeners	Click to open the Tweeners sub-menu where you can select from several types of tweeners to use (for animation purposes). See the *Tweening* section on page 317 for details.

State Manager Drag-and-Drop Menu

To access the *State Manager Drag-and-Drop menu*, select a button state (thumbnail view), and hold the left mouse button down while dragging the selected state to another location in the *State Manager* window. The options in the State Manager Drag-and-Drop menu are described below:

State Manager Drag-and-Drop Menu	
Copy over State <#>	Select to replace the target (highlighted) State with the source (selected) State. This option is only presented if the Source (selected) State is dragged directly above the target (highlighted) State.
Insert copy before State <#>	Select to insert a copy of the Source (selected) State directly before the target (highlighted) State. In this case, the original Source State is left in place.
Move before State <#>	Select to move the Source (selected) State directly before the target (highlighted) State.
Cancel	Select to cancel the drag-and-drop operation.

Refer to the *Working With States* section on page 293 for details.

Transfer Status Window

The Send To Panel and Receive From Panel dialogs place the requested transfer into a queue, the status of which is displayed in the Transfer Status window, which may be docked/undocked from the main application window (FIG. 25).

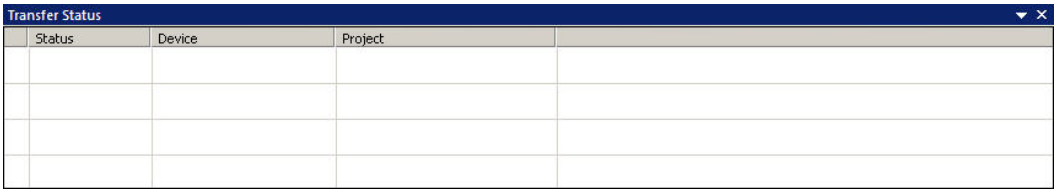


FIG. 25 Transfer Status Window

This window displays the following data for each transfer:

- **Status -** The status bars indicate the progress of each file in the transfer, and the overall status of the transfer.
- **Device -** This column gives the Device # and a description of the target/source device.
- **Project -** This column indicates the name of the Project to which the files belong.

Transfer Status Context Menu

Right mouse click anywhere in the Transfer Status Window to open the Transfer Status context menu, containing options for establishing a connection to the NetLinx Master and panels, and for transferring TP4 files to the panels. Note that this context menu is identical to the Transfer Menu, accessible through the main menu bar.

Refer to the *File Transfer Operations* section on page 343 for details.

Button Preview Window

Select **View > Button Preview** to open the Button Preview window (FIG. 26):

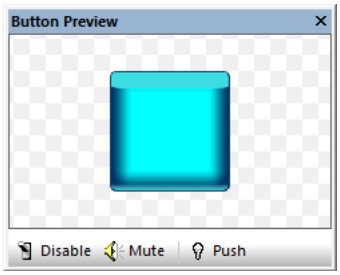


FIG. 26 Button Preview Window

The Button Preview window displays a preview of the selected button. Initially the button is shown in its Off state. Right-click inside the preview area of the Button Preview window to access the Button Preview context menu, which provides options for Size (zoom settings) as well Background settings for the Button Preview window.

Like the other windows in TPD4, the Button Preview window is fully dockable, but initially it opens undocked. Double-click inside the title bar to dock the window.

NOTE

Button Preview is not available for Joystick or Listbox Buttons.

This window includes three command buttons:

- **Disable**: Click the disable button to disable the button preview, but not close the Button Preview window. Click again to enable the preview.
- **Mute**: Click to Mute any sounds associated with this button.

- **Push**: Click the Push button to simulate a push on the selected button. This allows you to visually preview the On/Off states (and all states in between, for multi-state buttons). Alternatively, click on the button in the Button Preview window to "push" the button.

NOTE

*The Button Preview menu is also available in the Button menu (as the Preview sub-menu). If the options under Button > Preview are disabled, then open the Preview window via the View menu, and click the **Disable** button to enable button preview.*

Print Preview Window

Select **File > Print Preview** to display a preview of the pages and popup pages in the active project, as they will appear when printed (FIG. 27).

FIG. 27 Print Preview Window

Each page and popup page in the project is printed one per page. The printed output maintains a constant scaling factor across all pages, with the image centered on the printed page.

The options in the Print Preview window toolbar include:

Print Preview Window - Toolbar Options	
Print	Prints the current page view
Next Page	Displays the next page of the selected file
Prev Page	Displays the previous page of the selected file
One Page/Two Page	Toggles the page view to one or two pages. This option is enabled only if the active file is longer than one page.
Print Preview Window - Toolbar Options (Cont.)	
Zoom In	Zooms in on the page view
Zoom Out	Zooms out from the page view
Close	Closes the Print Preview window

If you don't have a printer installed on your PC, the File > Print and File > Print Preview options will invoke a message alerting you to install a printer.

Working With Project (*.TP4) Files

Overview

TP4 Project (or Panel) files are created in the folder specified in the application preferences, unless you explicitly choose to save them in another location.

Project Files contain all of the information required to define the user-interface that is displayed on the touch panel, including pages and popup pages and associated navigation/page-flip information, buttons including function code information, and all image and sound-related files that are used in the design.

- Each page / popup page name must be unique within their respective panel files in order to be accepted by the program.
- All name collision checks in the program are case insensitive.
- When creating a new Project file, avoid using inappropriate file name characters.

Inappropriate File Name Characters	
|	Vertical Bar
?	Question Mark
*	Asterisk
<	Less Than Sign
>	Greater Than Sign
/	Forward Slash
\	Back Slash
"	Double Quotes
:	Colon
.	Period

- TPD4 has a limit of 59 characters for the project name/filename. If you try to save with a longer name, TPD4 will automatically truncate the name to 59 characters.

Creating a New Project

TPD4 includes a *New Project Wizard*, to quickly guide you through the process of setting up a new project. To launch the New Project Wizard, select **File > New**, or click the toolbar button.

The New Project Wizard is designed to be simple and intuitive. Simply fill in the fields in each New Project Wizard dialog, and click *Next* to proceed to the next dialog.

Click the Finish button in the last dialog in the wizard to close the wizard. At this point, the project is created with one generic page, and is ready for you to start adding pages, popup pages and buttons and configuring External Controls and Gestures, if the selected panel type supports these features.

Using the New Project Wizard

The *New Project Wizard* steps you through the process of creating a new Project file (also known as a *Panel file*), complete with a start page. Use the New Project Wizard as a shortcut to starting new TPD4 projects.

- To launch the New Project Wizard, select **File > New**.
- To cancel the wizard at any point in the process, click **Cancel**.

The New Project Wizard is by its nature self-explanatory and intuitive, and consists of up to three dialogs:

New Project Wizard - Step 1

The first dialog to appear (**New Project Wizard - Step 1**) contains fields to allow you to set up the basic of your new project (FIG. 28):

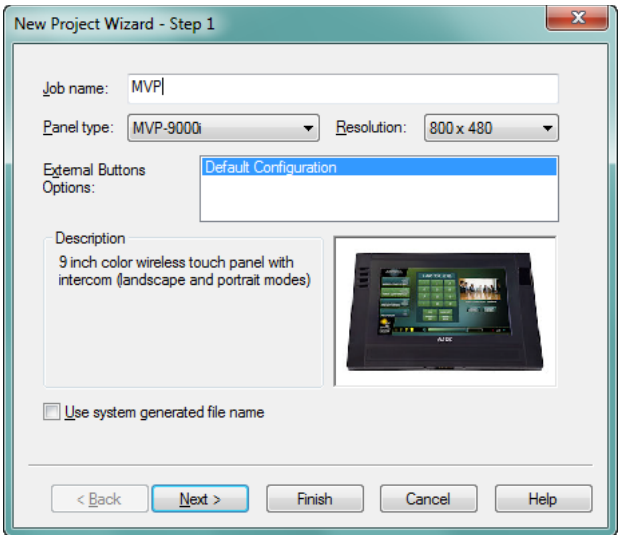
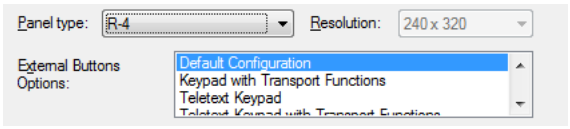


FIG. 28 New Project Wizard - Step One dialog

New Project Wizard - Step 1 dialog Options	
Job Name	Enter a name for your Project. Avoid using inappropriate file name characters: **|** - Vertical Bar **?** - Question Mark ***** - Asterisk **<** - Less Than Sign **>** - Greater Than Sign **/** - Forward Slash **** - Back Slash **"** - Double Quotes **:** - Colon **.** - Period • All name collision checks in the program are case insensitive. • TPD4 has a limit of 59 characters for the project name/filename. If you try to save with a longer name, TPD4 will automatically truncate the name to 59 characters.
Panel Type	Click the down arrow to view a list of supported panel types.
Resolution	If the Panel Type selected supports multiple screen resolutions, click the down-arrow to select a target resolution for the project. If the selected panel type supports resolution extensions (VESA, CEA etc.), the extension is provided with the associated resolution (not all resolutions require an extension). Note that for most panels, this setting is fixed once the panel type is selected.

New Project Wizard - Step 1 dialog Options (Cont.)	
External Button Options	MIO-R4 remotes support multiple external button options, to support transport and Teletext keypads. Select the desired external button layout from the drop-down list: 
External Button Options	The *External Button Option* selected here is represented in the *Panel Setup Information* tab of the *Project Properties* dialog:
Use System-Generated File Name	Click this checkbox to use a system-generated file name for this Project (see Step 2 below).

Fill out this information and click **Next** to proceed.

- You can click **Finish** to close the wizard at this point. If you close the wizard after step 1, you will have created a project with a single page. Every project created has at least one page.

  You can add pages manually via the **Panel > Add Page** command.
- The **Panel Type**, **External Button Options** and **Panel Resolution** selections cannot be modified once the panel project has been created. To change either of these, use the *Save As Different Panel Type* option (File Menu).

  See the *Converting a Project to a Different Panel Type* section on page 56 for details.

New Project Wizard - Step 2

The **New Project Wizard - Step 2** dialog collects the information that is used for System-Generated File Names. If the *Use System Generated File Names* option (in the Step 1 dialog) is not selected, this dialog is skipped since the information entered here would not apply.(FIG. 29):

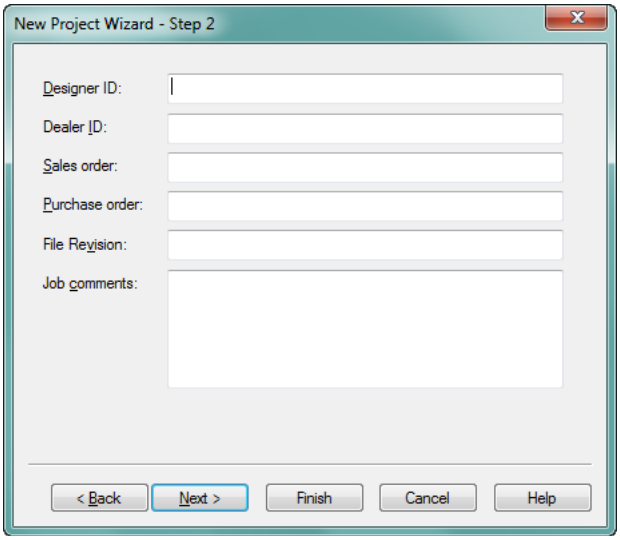


FIG. 29 New Project Wizard - Step Two dialog

When you utilize System-Generated File Names, the resulting filename for this project file consists of each of these entries separated by commas.

- These fields are all optional.
- If you leave any of the fields blank, they are simply omitted from the file name.

Fill out this information and click **Next** to proceed.

New Project Wizard - Final Step

The last dialog in the wizard (**New Project Wizard - Final Step**) contains fields for setting up the initial touch panel page for this Project (FIG. 30):

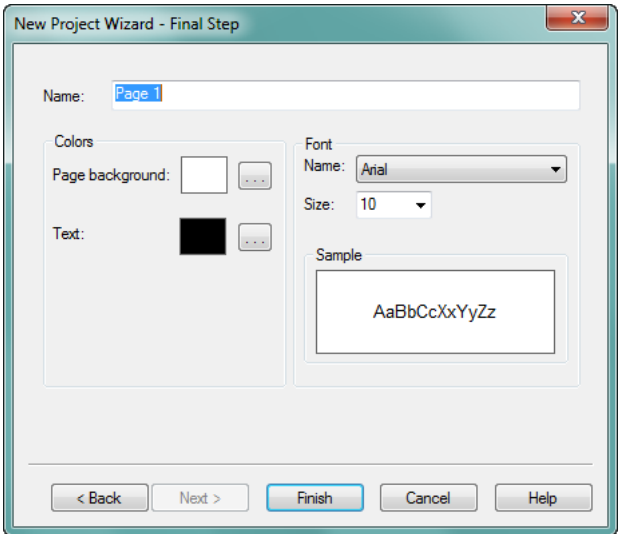


FIG. 30 New Project Wizard - Final Step dialog

New Project Wizard - Final Step dialog Options	
Name:	Enter a name for the page.
Colors (*Page Background* and *Text*):	Click the browse button (...) to open the *Colors* dialog, where you can select the colors for the Page Background and Page Text. TPDesign4 supports custom palettes. See the *Working With Colors and Palettes* section on page 309 for details.
Font:	Click the down arrow to select the Page Font, from a list of all available fonts on your PC.
Font Size:	Click the down arrow to select the Page Font size.

Fill out this information and click **Finish** to exit the New Project Wizard.

- When you finish the New Project Wizard, note that the new project appears in the Workspace Navigator window (Pages tab).
- The initial page is listed under the Pages folder, and has the edit focus.

Setting Project Properties

Select **File > Project Properties** to open the *Project Properties* dialog. This is a multi-tab dialog allowing you to view and edit the target touch panel's properties. Depending upon the panel selected, each panel will support all or part of the following properties at the panel level:

- **Project Information tab**: Includes basic project information such as Job Name, Designer, Dealer ID, Sales Order, Purchase Order, Revision, Creation Date, Revision Date, Last save date, Created with Build Number, File Name, Job Comments, the Use system generated filenames option and Protection options with Password fields.
- **Panel Setup Information tab**: Includes touch panel setup options including Refresh Frequency, Marquee Speed, Panel Strings (Startup, Wakeup and Sleep), Power-up and Inactivity Settings and Feedback Blink Rate.
- **Sensors tab**: Includes Channel/Level and Port settings for Light Sensors, Motion Sensors, Battery Levels and Cradle Sensors.
- **IR Emitters and Receivers tab**: Includes Channel Port information for AMX IR Emitters, AMX IR Receivers and User (non-AMX) IR Emitters.

Project Properties dialog - Project Information tab

Use the options in the Project Information tab of the Project Properties dialog (FIG. 31) to view/edit project information associated with the active project/panel file.

The information in this tab was set up when the project was created, in the New Project Wizard. These items represent the various components of the System-Generated File Name. If the *Use System-Generated File Names* option was not selected, these fields will be blank.

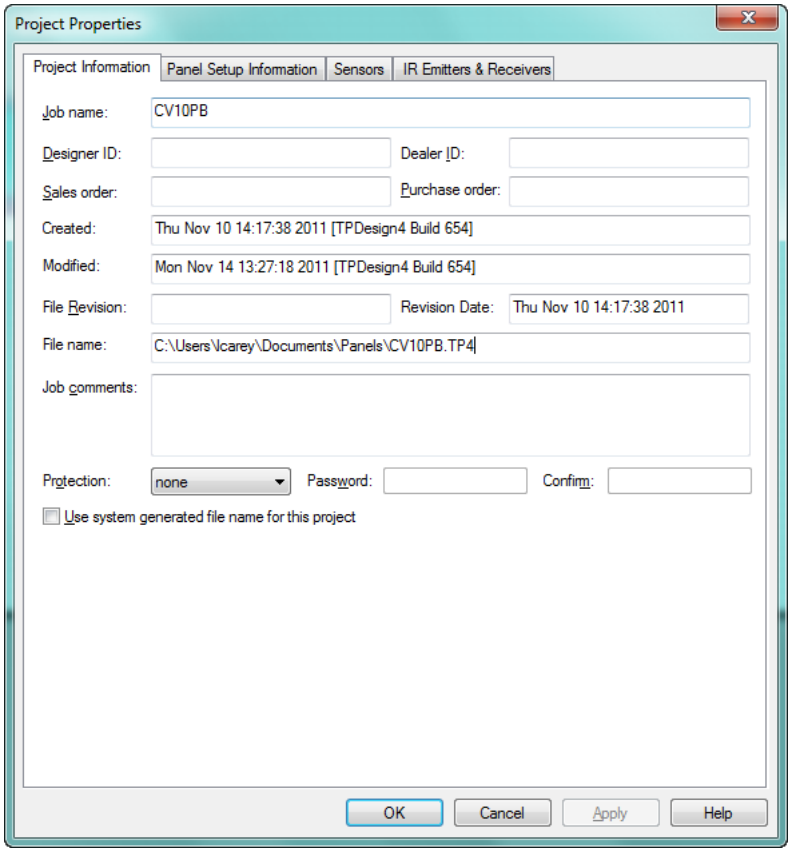


FIG. 31 Project Properties dialog - Project Information tab

The options in this tab include:

Project Properties dialog - Project Information tab	
Job Name	This editable field displays the current Job Name associated with this project (included in the system-generated file name, if enabled).
Designer ID	This editable field displays the current Designer associated with this project (included in the system-generated file name, if enabled).
Dealer ID	This editable field displays the current Dealer ID (identifier) associated with this project (included in the system-generated file name, if enabled).
Sales Order	This editable field displays the current Sales Order (identifier) associated with this project (included in the system-generated file name, if enabled).
Purchase Order	This editable field displays the current Purchase Order (identifier) associated with this project (included in the system-generated file name, if enabled).
Created	This read-only field displays the creation date for this project, and the build number of the TPD4 used to create this project.
Modified	This read-only field displays the last date on which this project was saved (and the build number of the TPD4 used to create this project).
File Revision	This editable field displays the current Revision (identifier) associated with this project (included in the system-generated file name, if enabled).
Revision Date	This read-only field displays the date of the current revision of this project.
File Name	This read-only field displays the full path and disc filename of the project.
Job Comments	This editable field displays any comments that were added in the *New Project Wizard*.
Protection	Click the down-arrow to select one of three levels of password protection for this project file: • *none* - this is the default setting (no password protection). • *read-only* - the next time this panel file is opened, the *Enter Access Password* dialog appears, prompting the user to enter the correct password in order to gain write access to the file. To simply view the file (as read-only), click on the *Read-Only* command button (in the *Enter Access Password* dialog). If the file opened in read-only mode, the word "[Locked]" appears immediately to the right of the project name in the Workspace Navigator, and no edits are allowed. Also, files opened as read-only cannot be saved to another file name. • *locked* - the next time the panel file is selected to open; the *Enter Access Password* dialog appears, prompting the user to enter the correct password to open the file. ***Note**: These protection options are not Windows file attributes, and are only relevant within the context of the TPD4 application.*
Password	Use this text field to enter the password (1 - 259 characters) to use if the file is set as either read-only or locked. Once the password has been typed, it must be re-typed in the Confirm text field.
Confirm	Use this text field to confirm the password by re-typing the password exactly as it was entered in the Password field. If the passwords don't match, a “Passwords do not match” message box is displayed.
Use System Generated File Names for This Project	Click this option to apply system-generated filenames to this project. • If the project was originally set up to use system-generated file names, then selecting this option will replace the original information with the updated information from this dialog. • If system-generated file names were not used for the project, this information will be added on the next save.

Applying Password Protection to Your Project File

TPD4 supports two levels of password protection for Project (.TP4) files:

- **Read-only** - the next time this Project file is opened, the Enter Access Password dialog appears, prompting the user to enter the correct password in order to gain write access to the file. The password is not required to open and view the file. Note that if a read-only file is opened without using the password, it cannot be saved under a new file name.
- **Locked** - the next time the panel file is selected to open; the Enter Access Password dialog appears, prompting the user to enter the correct password to open the file. If the password is not entered correctly, the file will not be opened at all.

NOTE

These protection options are not Windows file attributes, and are only relevant within the context of the TPD4 application.

To apply password protection to the open Project file:

1. Select **File > Project Properties** to open the Project Properties dialog - Project Information tab (see FIG. 31 on page 41).
2. Click the down-arrow next to Protection to select a level of password protection from the drop-down list: read-only, locked or none:

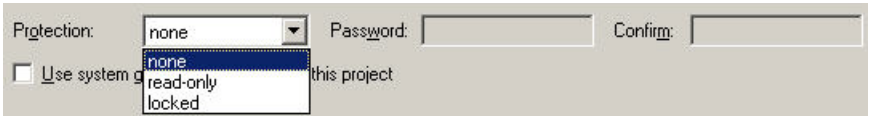


FIG. 32 Project Properties dialog (Project Information tab) - Protection options

3. Enter the password in the *Password* field. Passwords can be from 1 to 259 characters in length.
4. Re-type the password in the *Confirm* field. If the passwords don't match, a "Passwords do not match" message box is displayed, in which case you'll need to re-enter the password, or re-confirm the password, or both.
5. Click **Apply** to save the changes and apply the specified password to the Project file.

Project Properties dialog - Panel Setup Information tab

Use the options in the Panel Setup Information tab of the Project Properties dialog (FIG. 33) to view/edit setup information associated with the active project/panel file. This dialog identifies the panel for which this project is designed, and indicates it's screen resolution. In the case of MIO R-4 remotes, the External Button Option selected is indicated as well.

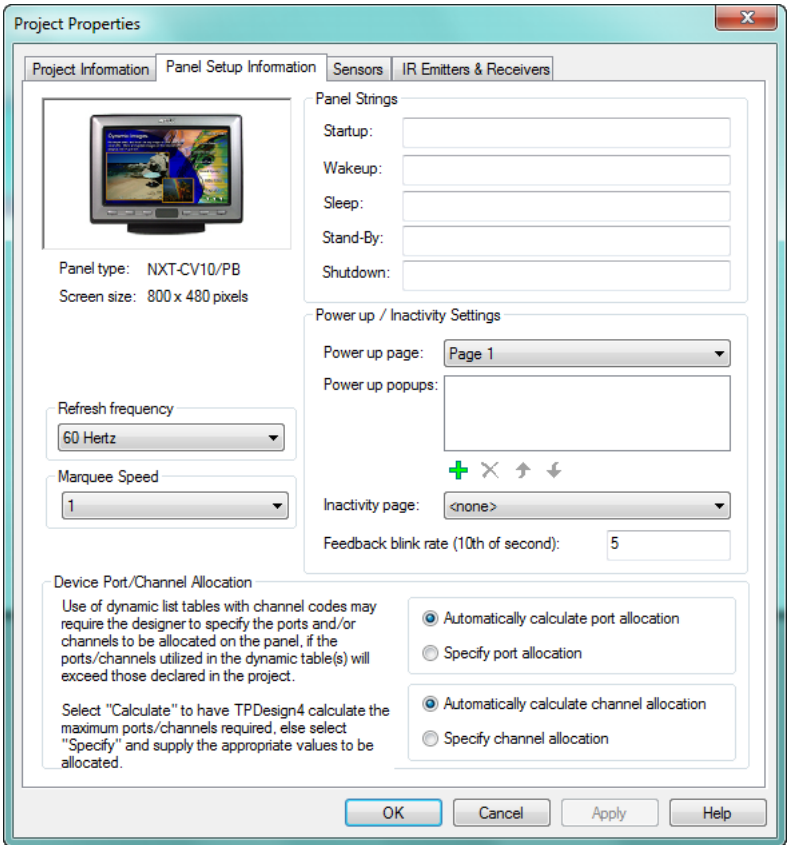


FIG. 33 Project Properties dialog - Panel Setup Information tab

The options in this tab include:

Project Properties dialog - Panel Setup Information tab	
Refresh Frequency	Select the desired refresh frequency for the selected panel, from the drop-down list of supported refresh frequencies (based on the selected panel/resolution).
Marquee Speed	Sets the speed of motion for Marquee text.
Panel Strings	Use these three fields to specify text strings to appear on the panel, during these conditions (Startup, Wakeup, Sleep, Stand-By and Shutdown). For example, if you entered "Hello!" for the Wakeup string, the panel will send this string to the NetLinx Master on wakeup. ***Note**: In order to receive strings from a device, the programmer typically creates a buffer or adds a DATA_EVENT/STRING: handler for the device. This will cause an RXON command to be sent to the device, then the master will pass the strings from the device.*

Project Properties dialog - Panel Setup Information tab (Cont.)	
Power Up/Inactivity Settings	• *Power up page* - Click the down-arrow to view a drop-down list of all pages currently saved in this project. Click to select the initial startup page for the panel. • *Power up popups* - This field indicates the Power-Up popup pages that will appear over the Power up page. • *Inactivity page* - Click the down arrow to select which page to flip to after the specified period of inactivity (set on the touch panel). • *Feedback blink rate (10th of second)* - If you are using blinking button feedback in your project, use this field to specify the blink frequency, in 1/10th-second increments (default = 5).
Device Port/Channel Allocation	The use of dynamic list tables with channel codes may require the designer to specify the ports and/or channels to be allocated on the panel, if the ports/channels utilized in the dynamic table(s) will exceed those declared in the project. These options include: • **Automatically calculate port allocation -** select to have TPDesign4 calculate the maximum ports required (*default setting*). • **Specify port allocation -** select to supply a specific port number to be allocated to dynamic list tables. When this option is selected, a text field is provided for you to manually enter the port number to be allocated. • **Automatically calculate channel allocation -** select to have TPDesign4 calculate the maximum channels required (*default setting*). • **Specify channel allocation -** select to supply a specific channel number to be allocated to dynamic list tables. When this option is selected, a text field is provided for you to manually enter the channel number.

Setting a Power Up Page

Use the **Power-up page** option in the *Panel Setup Information* tab to specify a particular page in your project to be displayed when the panel is turned on:

1. Select **File > Project Properties** to open the *Project Properties dialog - Panel Setup Information* tab (FIG. 33 on page 44).
2. Click the down arrow next to the **Power up page** field to display a list of all of the pages in this project (FIG. 34):

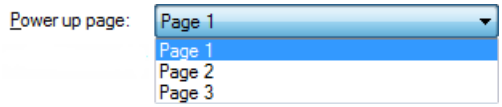


FIG. 34 Power-up Page drop-down list

3. Select the page that you want to be used as the Power-up page from this list.

Setting Power Up Popup Pages

Use the **Power-up Popups** option in the *Panel Setup Information* tab to specify one or more popup pages in your project to be displayed over the Power up page when the panel is turned on:

1. Select **File > Project Properties** to open the *Project Properties dialog - Panel Setup Information* tab (FIG. 33 on page 44).
2. Click the green Plus sign icon below the **Power up Popups** field to invoke the *Add Power Up Popup* dialog, presenting a list of all popup pages in the active Project (FIG. 35):

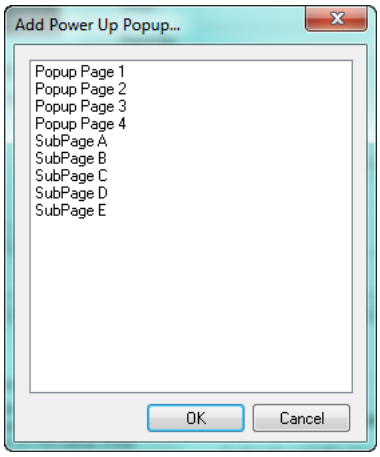


FIG. 35 Add Power Up Popup dialog

3. Select a popup page that you want to be displayed over the Power-up page from this list and click **OK**.
4. The selected popup page is indicated in the Power up Popups field.
   - To display multiple Popups over the Power up page, repeat steps 2 and 3 to select another popup. If you select more than one popup page, you can specify the display order via the up/down arrow buttons below the Power up Popups field. The popup at the top of the list is the first to be displayed.
   - To remove a popup from the Power up Popups list, click the Remove Popup (X) button below the Power up Popups field.
5. Click **Apply** to apply this change.

Setting an Inactive Page Flip

Use the **Inactive Page Flip** option in the *Panel Setup Information* tab to specify a particular page in your project to be displayed when the panel is inactive for a specified period of time:

1. Select **File > Project Properties** to open the *Project Properties dialog - Panel Setup Information* tab (FIG. 33 on page 44).
2. Click the down arrow next to the **Inactive page flip** field to display a list of all of the pages in this project (FIG. 36).

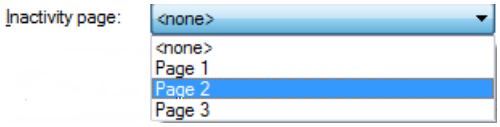


FIG. 36 Inactivity Page drop-down list

3. Select the page that you want the panel to flip to when the panel is inactive for the amount of time specified on the panel.

You can use the Inactivity Page Flip option to create a "screen-saver" for the panel as part of your project.

Project Properties dialog - Sensors tab

Use the options in the *Sensors* tab of the Project Properties dialog (FIG. 37) to view/edit Channel/Level and Port settings for sensors associated with the active panel file:

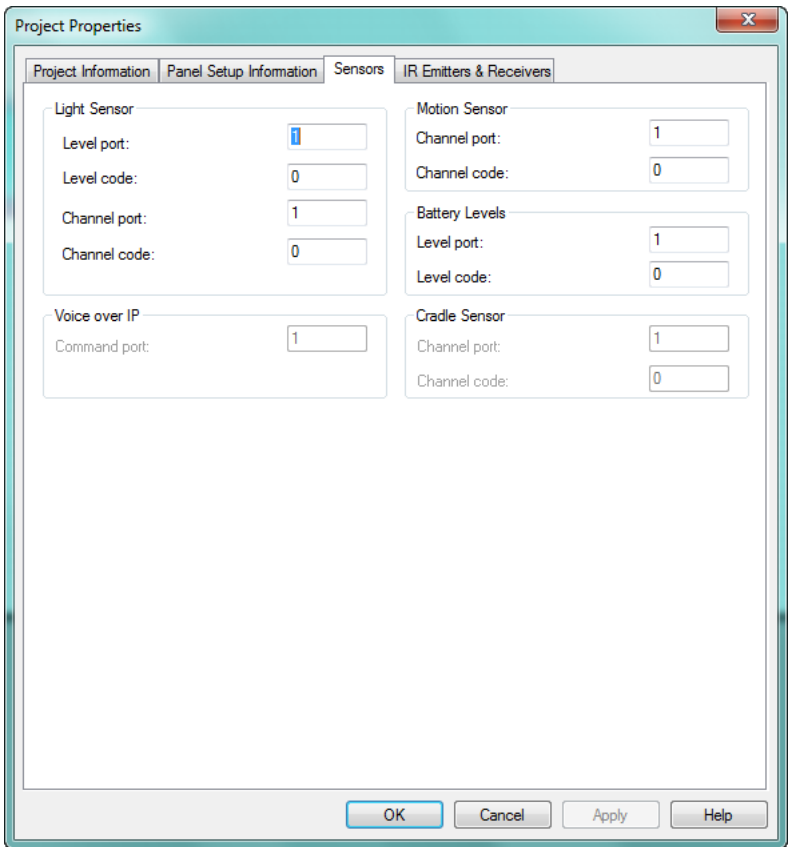


FIG. 37 Project Properties dialog - Sensors tab

Project Properties dialog - Sensors tab	
Light Sensor	Use these fields to specify the Level and Channel port/code assignments for the on-board light sensor.
Motion Sensor	Use these fields to specify the Channel port/code assignments for the on-board motion sensor.
Battery Levels	Use these fields to specify the Level port/code assignments for the on-board battery charger.
Voice Over IP	Use this field to specify the command port to be used for VoIP ((intercom-enabled panels only, default = 1).
Cradle Sensor	Use these fields to set the Channel port/code assignments for the Cradle Sensor on MVP panels. The channel will be turned on when the panel is docked (either in the tabletop docking station or in the wall cradle).

NOTE

Some of these options may be disabled, depending on the capabilities of the target touch panel.

Project Properties dialog - IR Emitters and Receivers tab

Use the options in the I*R Emitters and Receivers* tab of the Project Properties dialog (FIG. 38) to view/edit port information associated with the active panel file for AMX 38KHz & 455KHz IR emitting and receiving, and user-defined ports for IR emitting using custom IR files:

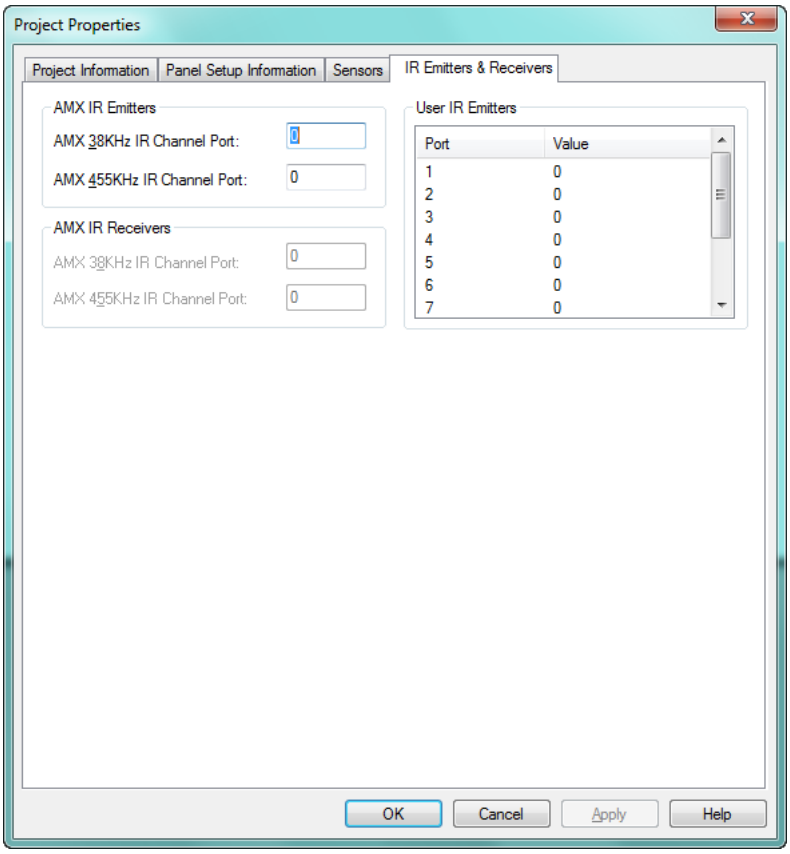


FIG. 38 Project Properties dialog - IR Emitters and Receivers tab

The options in this tab include:

Project Properties dialog - IR Emitters and Receivers tab	
• **AMX IR Emitters**	These options allow you to specify the IR Channel port (either 38KHz or 455KHZ) to be used for standard AMX IR emission.
• **User IR Emitters**	These options allow you to specify the IR Channel port to be used for user-defined IR emitters. The User IR Emitters table displays a grid of user IR ports and their respective values in two columns: Port (read-only) and Value. • The value associated with each port can be modified in-place (range = 0-100). The default value for each port is zero (not used). • All port values entered will be validated against other existing IR emitter or receiver port values to ensure that all non-zero IR port values are unique.
• **AMX IR Receivers**	These options allow you to specify the IR Channel port (either 38KHz or 455KHZ) to be used for receiving AMX IR.

NOTE

Some of these options may be disabled, depending on the capabilities of the target touch panel.

Using the Selection Tool

To activate the Selection tool, select **Edit > Selection Tool**, or click the toolbar button in the Selection/Button Draw Toolbar (FIG. 39).

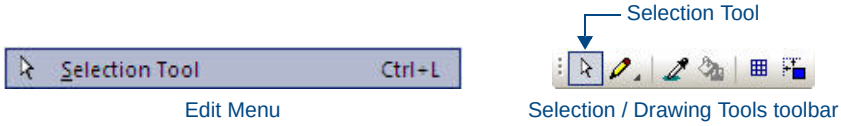


FIG. 39 Selection Tool

Use the Selection tool to pick/select objects in the Design View window(s). You can also select multiple buttons, using any of the following techniques:

1. Left click on the remaining desired buttons while simultaneously depressing the Shift key on your keyboard.
2. You may perform a marquis selection by holding down the left mouse button outside the boundaries of the desired buttons and drawing a selection box around the desired buttons.
3. In the Properties window, you may turn the **Apply To All** toggle button (located at the bottom of the Properties window) On, then individually select each desired button.
4. To select all available buttons on a page or popup page you may either use the Ctrl+A hotkey, or select **Edit > Select All** from the main menu.

NOTE

Although you may select and retain the selection of buttons on multiple pages, you may only act on the selected buttons on one page / popup page at a time.

- When using the Selection Tool, hold down the ALT key while clicking and dragging in a Design View window to move the current selections without selecting anything new on the mouse press (useful for moving popup pages whose entire area is filled with buttons).
- When using the Selection Tool, hold down the CTRL key while clicking and dragging to force a "lasso" selection to occur (even if the mouse was clicked over a button or Popup Page shown on the Page). Lasso selection forces you to draw a square around the outside of the item to select it, as opposed to clicking on the item.
- With an item selected in a Design View window, hold down the CTRL key while moving the item with the keyboard arrow keys to move by the grid size instead of a single pixel (regardless of the grid visibility or snap to grid setting). Holding the CTRL key while resizing the selected items with the keyboard will resize by the grid size.
- To de-select a button, either select another button, or left-click on the background of the page or popup page.

Edit Focus

The page, popup page, or button(s) that are the target for change actions are said to have the *Edit Focus*.

For pages and popup pages, edit focus is indicated in the Workspace Navigator (Pages tab) by a small arrow at the lower-left corner of the icon for the selected page or popup page. FIG. 40 shows that "*Page 1*" in the "*TPD4*" project has the edit focus:

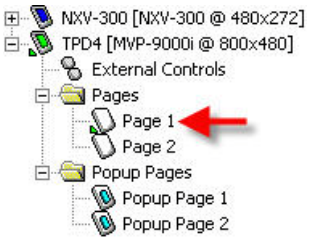


FIG. 40 Edit Focus (Workspace Navigator (Pages tab)

For buttons, edit focus is indicated in the Design View window with small red squares (with yellow outlines) on the edges of the selected button (FIG. 41):

FIG. 41 Edit Focus (Workspace Navigator (Design View window)

The *Cut*, *Copy* and *Paste* functions in TPD4 always work on the element which has the current edit focus. This means the *last thing selected (*not necessarily a button displayed in the Design View windows) has the edit focus. For example, if you have selected an item in the Properties window (let's say you've selected "Channel Port", and you perform a "Copy", then you will have copied only the Channel Port entry in the Properties window, and not the associated button (even though it is selected in the Design View window). You can then paste the Channel Port number anywhere else in the Properties window (where the copied data is considered to be a valid entry).

If for example you had copied the value "410" from the **Left** (position) field in the Properties window, you are not allowed to paste it to the Address Port field, since it is not a valid Address Port number - these errors are indicated by an error dialog.

Drag and Drop Support

- **Project Files**: Drag and drop TPDesign4 project files (*.TP4) from a Windows Explorer window onto the TPDesign4 workspace to open the project.

You can also drag and drop TPDesign3 (.TPD) project files into the workspace, to open the file via the TPD Conversion Wizard.*

- **Popup Pages**: Popup Pages can be dragged from the Pages tab and dropped on a Design View as an alternate method of displaying the Popup Page on the full sized Page.
- **Page Flips**: TPDesign4 supports a shortcut for adding page flips: Simply select the target page or popup page for the flip in the Workspace window (Pages tab), drag it into a Design View window and drop it onto a button to create a flip to that page or popup page.

Dragging a Popup Page onto another Popup Page is not supported.

- **States**: Copies of states can be added within the same button via drag-and-drop. See the *Adding States via Drag-and-Drop* section on page 295 for details.

Cutting, Copying and Pasting

There are several items that can be cut, copied or pasted in TPD4. The ability to utilize these features effectively can greatly increase your productivity.

The Copy and Paste functions in TPD4 always work on the element (including buttons, bitmaps, even individual button properties displayed in the Properties window) which has the current Edit Focus. This means the last thing selected, which is not always necessarily a button displayed in the Design View windows, has the edit focus.

For example, if you have selected an item in the Properties window (let's say you've selected "Channel Port", and you perform a "Copy", then you will have copied only the Channel Port entry in the Properties window, and not the associated button (even though it is selected in the Design View window). You can then paste the Channel Port number anywhere else in the Properties window (where the copied data is considered to be a valid entry).

If for example you had copied the value "410" from the Left (position) field in the Properties window, you are not allowed to paste it to the Address Port field, since it is not a valid Address Port number (these errors are indicated by an error dialog).

Cutting Objects

Cutting an object or objects is similar in nature to copying, with the exception that the selected object or objects will be removed.

You may cut by selecting **Edit > Cut** from the main menu, using the Ctrl + X hotkey, or by clicking the Cut toolbar button (FIG. 42).

FIG. 42 Cut toolbar button

Paste Controls dialog

Select **Button > Paste Control** to open the *Paste Control Options* dialog (FIG. 43).

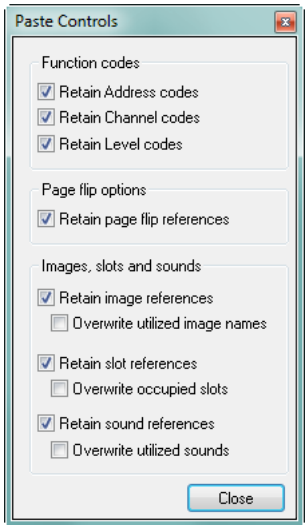


FIG. 43 Paste Control Options dialog

Use the options in this dialog to specify exactly which elements of copied elements you want to retain when they are pasted back to the project. The options in this dialog include:

- **Function Codes**: Click these options to select which aspects of function codes (Address Codes, Channel Codes, and Level Codes) will be retained when the button is pasted from clipboard memory. By default, all three options are checked, and all function codes are retained when pasting the button.
- **Page flip options**: Click this option to retain page flip references (if any) when pasting the button (default = enabled).

- **Images, slots and sounds:** Click these options to select which collateral information (Image references, Slot references, and Sound references) will be retained when the button is pasted from clipboard memory. By default, all collateral information is pasted with the button.

  You can also select whether to overwrite image names, occupied slots and utilized sounds, in case you are pasting over existing buttons that have their own image/slot/sound associations. By default, all "overwrite" options are disabled.

See Also:

- Copying/Pasting Pages - page 103
- Copying/Pasting Popup Pages - page 117
- Copying/Pasting Buttons - page 134
- Copying/Pasting States - page 295
- Copying/Pasting Across Projects - page 55

Quick Input

Select **Quick Input** from the Edit menu or Design View context menu to access the *Quick Input* sub-menu (FIG. 44).

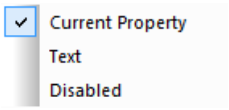


FIG. 44 Quick Input sub-menu

The Quick Input setting determines how typing directly into a Design View or into the State Manager will be handled:

- **Current Property** - This setting redirects keyboard input to the currently selected property on the currently visible tab of the Properties Window (assuming one is selected).

  For example, if you select the *Name* property (in the General tab of the Properties window), any time you select a button in the Design View, you can just type and press the Enter key to enter a new button name for the selected button. The result of the keystroke will depend on the property selected.
- **Text** - This setting redirects keyboard input to the button *Text* property for all selected button states (in the States tab of the Properties window).

  For example, if you select several states on a Multi-State button (in the State Manager window), you can type and press the Enter key to enter new button text for the selected states. If no states are selected, the text will be applied to all states of the button selected in the Design View.
- **Disabled** - Disables the Quick Input option.

Undo/Redo

TPD4 supports full Undo / Redo functionality at the panel level. This means that each panel file that is open in the program maintains a separate undo/redo stack and manages this for the user. You may either click the Undo or Redo toolbar icons, or click **Edit > Undo** or **Edit > Redo**.

Click the down-arrows to view a history list that lists up to 25 of the most recent actions (FIG. 45).

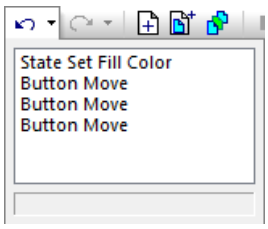


FIG. 45 Undo List

Click to select one or more actions to be undone/redone.

The commands alter their text dynamically to indicate which action is next in the undo/redo list. Selecting either option will immediately undo/redo the last action. These actions are independent of any file saves, therefore you may undo past a save if you so desire.

Once a panel file is closed, it's undo/redo stack is flushed and is no longer available.

The following actions may be undone/redone:

- Button Property Changes
- Page / Popup Page Renames
- Button Deletions / Cuts
- Button Creations / Pastes
- Page / Popup Page Deletions / Cuts
- Page / Popup Page Creations / Pastes
- State Deletions / Cuts
- State Creations / Pastes
- Copying/Cutting/Pasting images and sounds

Using G4 PanelPreview

To preview your panel project, select **Panel > Send To G4 PanelPreview** (or click the toolbar button) to launch the G4 PanelPreview application, where you can preview the project and simulate push and release of buttons, (including multi-state and bar graph buttons) via the mouse and keyboard on your PC (FIG. 46).

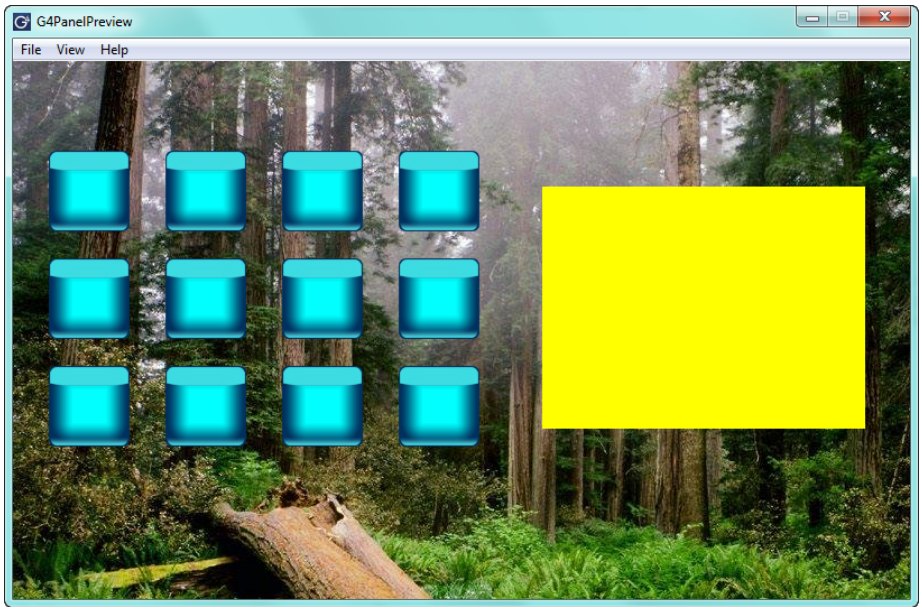


FIG. 46 G4 PanelPreview application,

NOTE

G4 PanelPreview is available from www.amx.com, and must be installed in order to activate this menu option.

Refer to the G4 PanelPreview online help file for details.

Generating the Programmer's Report

Select **Panel> Generate Programmers Report** to generate a Programmers report on the selected Page that summarizes various aspects of the active Project.

This selection invokes the Generate Programmer's Report sub-menu, where you can select a file format for the generated file:

- **Comma Separated Format** - This option produces a .CSV file (compatible with most spreadsheet applications, including Microsoft Excel).
- **Text Only Format** - This option produces a .TXT file (compatible with most text editor applications, including Microsoft Notepad).
- **Web Page Format** - This option produces a .HTML file (compatible with most web browser applications, including Internet Explorer).

When you select a format option, TPD4 generates the Programmer's Report and opens it in the default application according to the file type (FIG. 47).

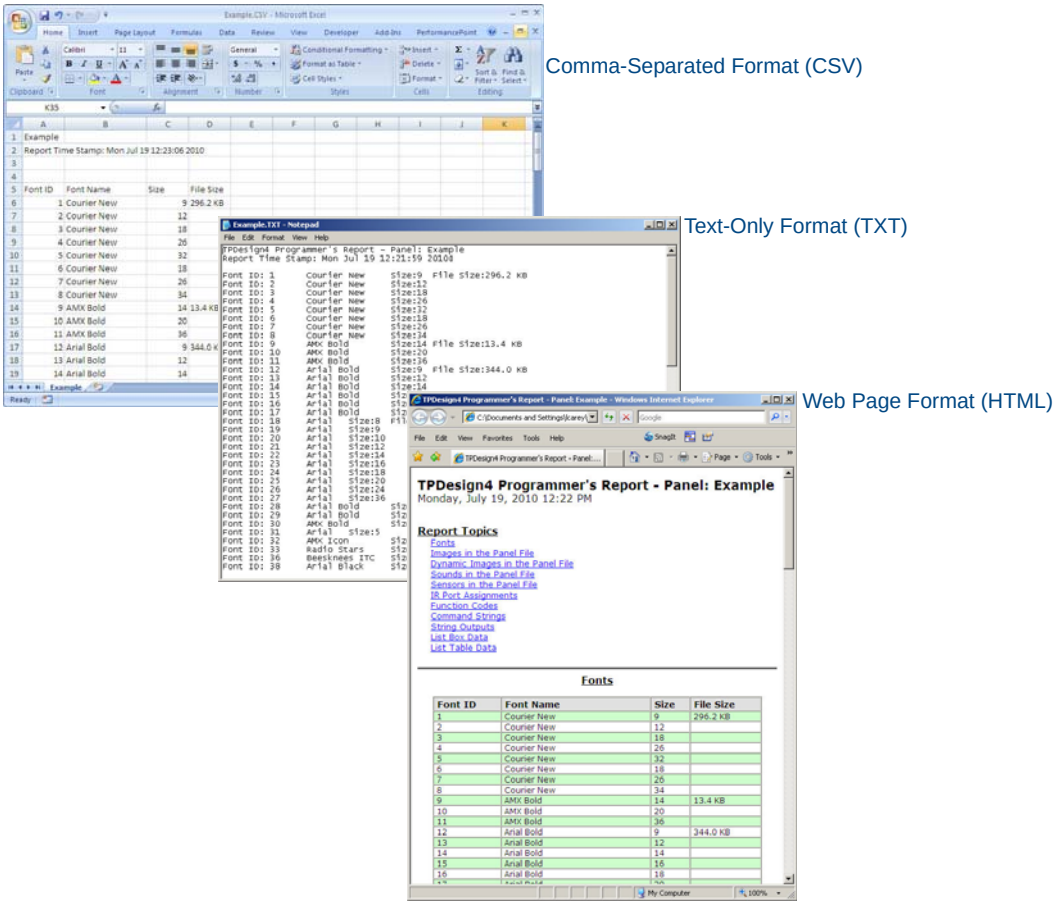


FIG. 47 Example Programmers Reports

Working With Multiple Projects

TPD4 supports working on multiple projects simultaneously, with a few limitations:

Opening Multiple Projects Simultaneously:

- Each project page has its own tab along the bottom of the Design View window (known as MDI Page Tabs). TPD4 will display up to a maximum of 15 page tabs. If you open more than 15 pages, only the most recently opened 15 pages will remain open (the others will be automatically closed).
- Use the **View > MDI Page Tabs** option to toggle the page tabs. When this option is enabled, a tab is displayed for each open page. The page tabs normally appear along the bottom edge of the Design View window area, but can be moved, toggled or modified via the MDI tabs context menu (right-click inside any of the tabs).

Copying/Pasting Across Projects

TPD4 allows you to copy and paste pages, popup pages and buttons, including all of their various attributes across projects. This can obviously be a major time saver, and there are a few key points to keep in mind in doing so:

Use the *Paste Control Options* dialog to specify wether to retain Function Codes (Address, Channel and Level codes), Page Flip Options, and Images/Slots/Sounds when the page, popup page or buttons are pasted into a separate project. This a powerful tool. Give some thought to which elements of the page, popup page or button you want to retain in the target project.

When you copy/paste across projects, if the selected pages, popup pages and/or buttons contain bitmaps, icons and/or sounds, those elements are copied into the target project along with the page, popup page or button (assuming that Retain image references, Retain slot references and Retain sound references are all selected in the Paste Control dialog). Once the buttons are pasted into the target project, the bitmaps, icons and sounds that came over with the pasted buttons are available in the Resource Manager for the target project.

If you copy/paste a page or popup page containing buttons, the buttons are copied along with the page.

Copying/Pasting Pages, Popup Pages and Buttons Across Projects

1. Open the *Paste Control Options* dialog (**Button > Paste Controls)** to specify wether to retain Function Codes (Address, Channel and Level codes), Page Flip Options, and Images/Slots/Sounds when the copied buttons are pasted into a page in a separate project (FIG. 48):

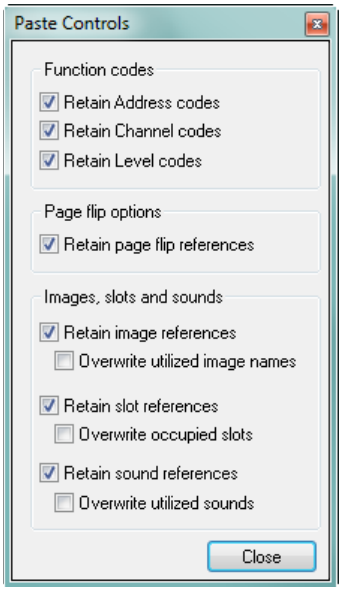


FIG. 48 Paste Control Options dialog

2. Click to select the source page or popup page (the one that you want to copy to another project), in the Workspace Navigator window (Pages tab). and Copy (use Ctrl+C, Edit > Copy, the Copy toolbar button, or select Copy from the Workspace Navigator context window).

NOTE

It is not necessary to open a page to copy it: simply select the desired page with a single click in the Workspace Navigator window and copy the page.

3. In the Workspace Navigator (Pages tab), click to select the target project (the one that you want to paste the page or popup page into), and Paste (use Ctrl+V, Edit > Paste, the Paste toolbar button, or select Paste from the Workspace Navigator context window).

Pages and Popup pages are automatically pasted into the correct folders.

Converting a Project to a Different Panel Type

TPD4 allows you to save the active panel project to be compatible with a different panel type than was specified when the file was created (in the New Project Wizard).

1. Open the Project (.TP4) file that you want to convert (**File > Open**).

NOTE

The panel that this project was designed for is indicated in the Panel Setup Information tab of the Project Properties dialog.

2. Select **File > Save As Different Panel Type** to open the *Save As Different Panel Type* dialog (FIG. 49).

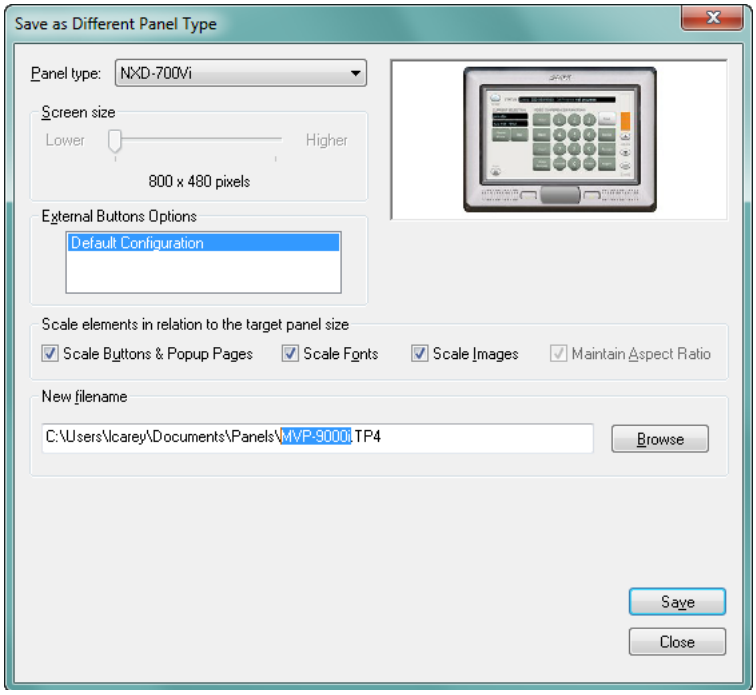


FIG. 49 Save As Different Panel Type dialog

3. Click the down arrow next to **Panel Type** to access the drop-down list of supported panel types. Note that this field initially shows the panel type currently associated with this project.
4. Select a the desired panel type from the list.

NOTE

Since each panel type has its own specific resolution, the Screen size field is read-only, unless you select the NXP-TPI/4, TPI-PRO or TPI-PRO-DVI, which support multiple resolution settings. In this case, move the slider to select the desired resolution.

5. Use the **Scale Elements in relation to the target panel size** set of options to specify how to scale various elements of the project to fit the target panel (Scale Buttons & Popup Pages, Scale Fonts and/or Scale Images). These options may be enabled/disabled independently of each other.

By default, the program scales all elements of the panel file, which should produce the best overall effect. Note that scaling an image to a greater size produces more artifacts in the final image than reducing the image.

6. Use the **New Filename** field to rename the project file, if desired. Use the **Browse** button to navigate to a different target directory if necessary.
   - TPD4 will convert any *Sub-Pages* to *Standard Popups* on a Save As Different Panel Type operation from a panel that supports the sub-page view feature to a legacy panel-type that doesn't
   - If there are elements in the project that are not supported by the new panel type, they are presented in the *Errors & Warning Reports* dialog.

Errors and Warnings Report dialog

When you convert a TPDesign3 project to a TPD4 project, or save the project as a different panel type, TPD4 generates a report that lists errors and warnings relating to the conversion process. The Errors and Warnings reports are displayed in the *Error and Warnings Report* dialog (XXXXXXXXXXX).

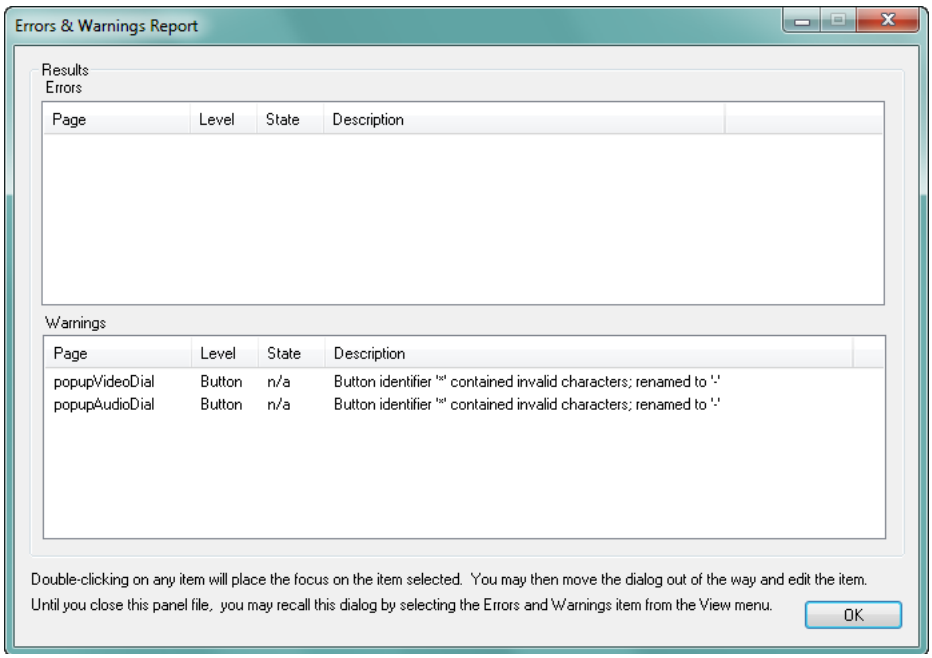


FIG. 50 Error and Warnings Report dialog

Neither errors or warnings will prevent the file from being compiled, but will probably require that the issues be resolved in order to have buttons and pages that look and function as expected.

- **Errors** are issues that result in unexpected button borders, usually because there are button or buttons in the project that are smaller than the minimum size of the selected border.
- **Warnings** are issues that represent potential visual/formatting problems, like minor shifts in shape and size on some buttons. The bottom text box lists all Warnings encountered during the conversion process.

Double-click on any item (with a few exceptions) to open the page or popup page, with edit focus on the selected item so you can quickly fix the indicated problem.

TPD4 will convert any Sub-Pages to Standard Popups on a Save As Different Panel Type operation from a panel that supports the sub-page view feature to a legacy panel-type that doesn't

Click the **Finished** button to close the *Errors and Warnings Report* dialog. As long as the project file is not closed, you can access the error and warnings reports in this dialog by selecting View > Errors and Warnings Report (or by pressing the F10 hotkey).

Converting TPD3 files to TPD4

TPDesign4 is backward-compatible with TPDesign3. However, project files that were created in TPDesign3 must be converted in order to be compatible with TPDesign4, for use with G4 panels.

Via File > Open

1. Simply open a TPD3 file via the **File > Open** command.
2. In the *Open* dialog, set the **File Types** selector to TPDesign3 Files (*TPD*):

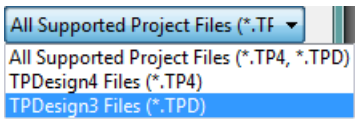


FIG. 51 Open dialog - File Types selector set to TPDesign3 Files (TPD)

In this case, TPD4 automatically launches the *TPD Conversion Wizard* (see below) and populates the first dialog to indicate the selected file.

NOTE

When the TPD file is converted and opened in TPD4, the pages and popup pages may appear in a different order than they occurred in TPDesign3, since TPD4 sorts the page and popup pages alphabetically.

Using the TPD Conversion Wizard

TPDesign4 includes a *TPD Conversion Wizard* tool that makes it easy to convert your existing TPDesign3 files for use with TPDesign4.

1. Select **File > Save As Different Panel Type** to launch the TPD Conversion Wizard. The TPD Conversion Wizard steps you through the conversion process in three dialogs:
2. **Step 1 of 3 (Select Source and Destination):** In the *TPD Conversion Wizard - Select a Source & Destination (Step 1 of 3)* dialog (FIG. 52), select the TPD project file that you want to convert (use the browse button to navigate to the desired file, via the *Open* dialog).

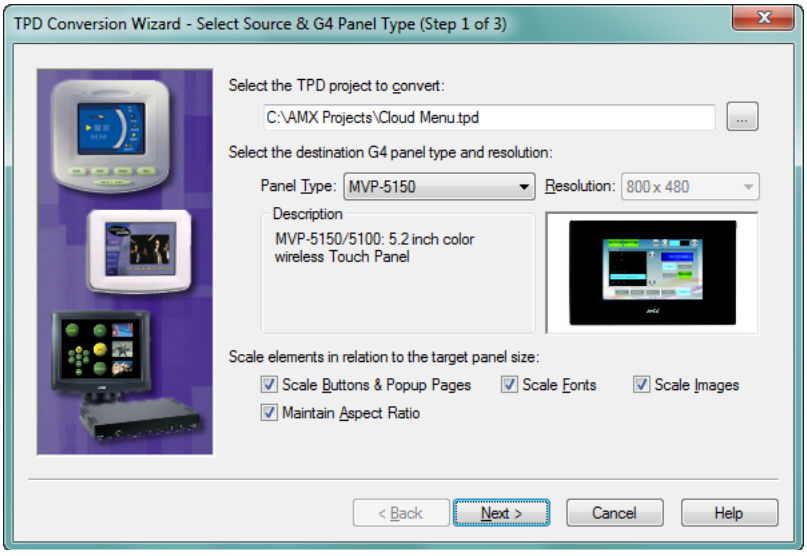

TPD Conversion Wizard - Select Source & G4 Panel Type (Step 1 of 3)
Select the TPD project to convert:
C:\AMX Projects\Cloud Menu.tpd
Select the destination G4 panel type and resolution:
Panel Type: MVP-5150
Resolution: 800 x 480
Description
MVP-5150/5100: 5.2 inch color wireless Touch Panel
Scale elements in relation to the target panel size:
Scale Buttons & Popup Pages
Scale Fonts
Scale Images
Maintain Aspect Ratio
< Back
Next >
Cancel
Help

FIG. 52 TPD Conversion Wizard - Select a Source & Destination (Step 1 of 3) dialog

- Click the down arrows next to *Panel Type* and *Resolution* to specify the target G4 panel for the project file.
- If you selected a panel that supports multiple resolutions (i.e. NXP-TPI4, TPI-PRO, TPI-PRO-DVI), you can specify the target resolution for the project. A description and image of the selected panel is displayed.
- Click **Next** to proceed.

3. **Step 2 of 3 (View Warnings and Substitute Fonts):** The *TPD Conversion Wizard - Warnings & Font Substitution (Step 2 of 3)* dialog (FIG. 53) contains two read-only text fields:

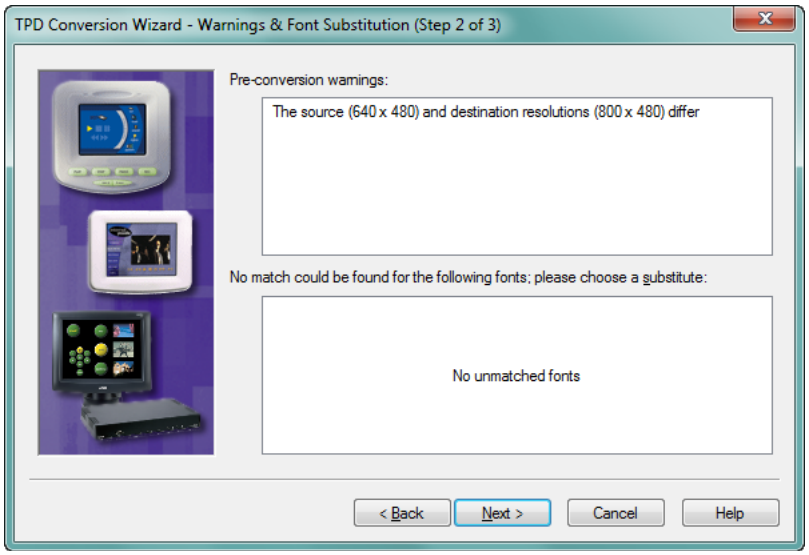

TPD Conversion Wizard - Warnings & Font Substitution (Step 2 of 3)
Pre-conversion warnings:
The source (640 x 480) and destination resolutions (800 x 480) differ
No match could be found for the following fonts; please choose a substitute:
No unmatched fonts
< Back
Next >
Cancel
Help

FIG. 53 TPD Conversion Wizard - Warnings & Font Substitution (Step 2 of 3) dialog

- The *Pre-Conversion Warnings* list box alerts you to any possible conflicts that will exist in the selected file, once the conversion process is applied.

  For example, if the target panel/resolution differs from the original target of the TPDesign3 file, you will see a Pre-Conversion warning message indicating that scaling will occur. The conversion wizard handles most of these issues for you automatically.
- The lower list box indicates any fonts that were specified in the original TPDesign3 file, but that are not available to TPDesign4 (i.e. are not currently installed on your PC). For each unmatched font listed, you can select a substitute font to use instead. If all fonts used in the original file are still available, the message "No unmatched fonts" is displayed.
- Click **Next** to proceed.

4. **Step 3 of 3 (Finish):** The *TPD Conversion Wizard - Finish (Step 3 of 3)* dialog (FIG. 54) lists the selected file, the original panel/resolution association, and the target panel/resolution.

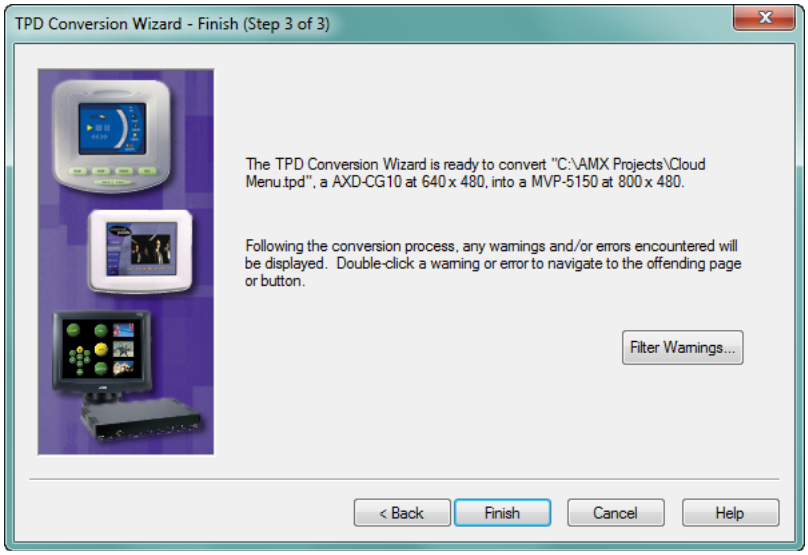

TPD Conversion Wizard - Finish (Step 3 of 3)
The TPD Conversion Wizard is ready to convert "C:\AMX Projects\Cloud Menu.tpd", a AXD-CG10 at 640 x 480, into a MVP-5150 at 800 x 480.
Following the conversion process, any warnings and/or errors encountered will be displayed. Double-click a warning or error to navigate to the offending page or button.
Filter Warnings...
< Back
Finish
Cancel
Help

FIG. 54 TPD Conversion Wizard - Finish (Step 3 of 3) dialog

When you convert a TPDesign3 project to a TPDesign4 project via the TPD Conversion Wizard, TPDesign4 generates a report that lists errors and warnings relating to the conversion process.

Errors and warnings are displayed in the *Errors and Warnings Report* dialog.

Neither errors nor warnings will prevent the file from being compiled, but will probably require that the issues be resolved in order to have buttons and pages that look and function as expected. See *Errors and Warnings Report dialog* on page 57.

- Click **Filter Warnings** to select which warning messages to display or suppress via the *Filter Conversion Warnings* dialog (FIG. 55).

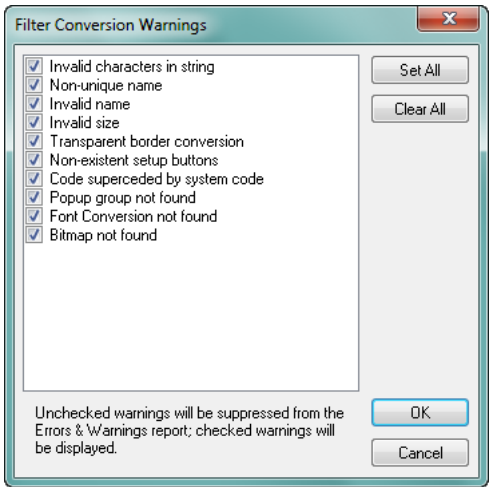


FIG. 55 Filter Conversion Warnings dialog

- Click **Finish** to launch the conversion process and open the *Errors and Warnings Report* dialog where you can view/fix the resulting warnings (FIG. 56).

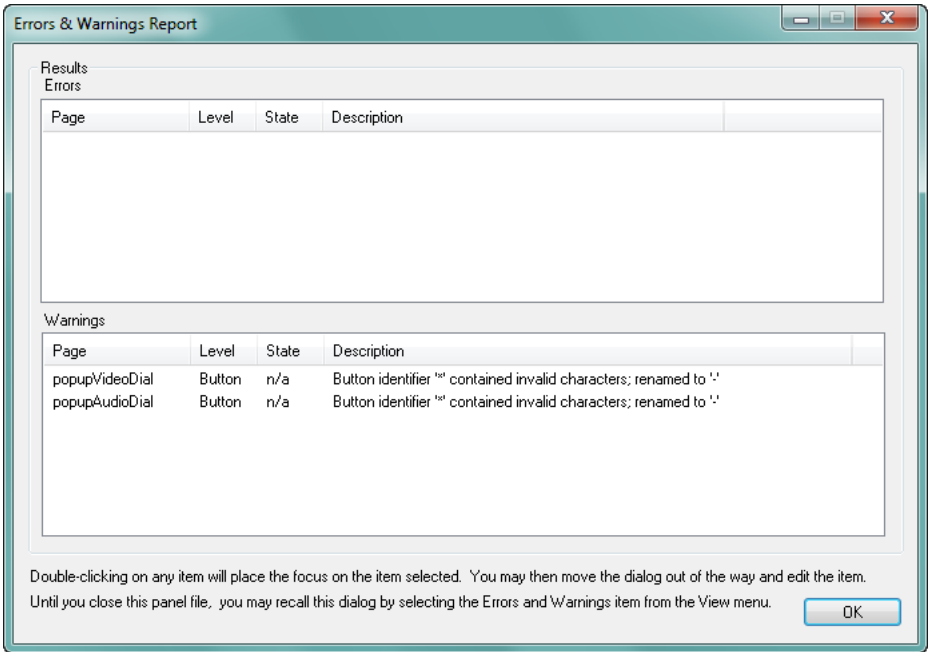


FIG. 56 Errors and Warnings Report dialog

When the TPD file is converted and opened in TPD4, the pages and popup pages may appear in a different order than they occurred in TPDesign3, since TPD4 sorts the page and popup pages alphabetically.

Resource Manager

Overview

TPDesign4 manages all image and sound on a project level via the *Resource Manager*. The Resource Manager provides the ability to import image and sound files so that they can be applied to various panel elements (Pages, Popup Pages and Buttons) in the active Project.

Once a image or sound file has been added to the Resource Manager, it is available to be applied to any panel element, and is available to share among any number of elements.

NOTE

All Image and Sound files must be imported into the Resource Manager before they can be used in the Project.

Resource Manager dialog

Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog (FIG. 57).

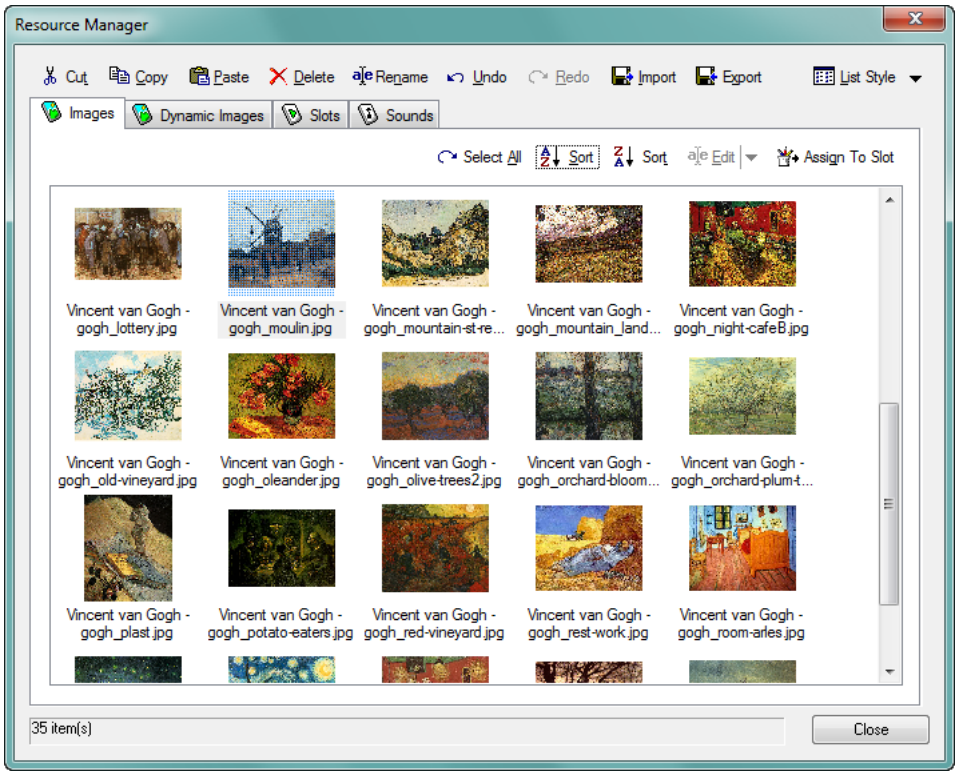


FIG. 57 Resource Manager dialog (Images tab)

This dialog contains features and options that allow you to easily organize and manage Images, Slots and Sounds for your project, organized into four tabs:

- **Images**: This tab provides a convenient way to import and preview all image files to be used in your project. TPD4 supports most popular image formats. See *Resource Manager dialog - Images tab* on page 63.
- **Dynamic Images:** This tab allows you to manage images that exist on an HTTP server or FTP server, external to the panel. Dynamic images can be refreshed at specified regular intervals or via the **Panel > Refresh Dynamic Images** option. See *Resource Manager dialog - Dynamic Images tab* on page 64.

- **Slots**: This tab allows you to manage slot assignments for images and icons. See *Resource Manager dialog - Slots tab* on page 65.
- **Sounds**: This tab provides a convenient way to import and preview all sound files (.WAV or .MP3) to be used in your project. See *Resource Manager dialog - Sounds tab* on page 66.

Resource Manager Toolbar

The Resource Manager contains its own toolbar above the tabs (FIG. 58):

FIG. 58 Resource Manager dialog toolbar

Depending on what you are doing with the listed Image, Dynamic Image or Sound files, one or more of the following options will be available:

Resource Manager Toolbar Options	
Cut/Copy/Paste:	Use these controls primarily to move images files to and from the *Slots* tab. They work in the typical way, and support selected multiple files. Note that if you copy or cut multiple files to clipboard memory, you must select at least the same number of slots (in the Slots tab) in order to paste all of the files. If you only select one slot, when you paste the multiple images, you'll only see the first one that you selected. ***Note**: You can also cut/copy/paste within any of the tabs.*
Delete:	Select one or more files and click *Delete* to delete them from the collection. The files are not deleted from the hard drive, just from this project. If any of the files selected for deletion are used by the active project, the *Resource(s) In Use* dialog is displayed, with a listing of all files targeted for deletion, as well as the Page(s) on which each file is used. By default, the Resource(s) In Use dialog is set to display any time a used resource is deleted. However, you can toggle the display of this dialog either by selecting the *Don't show me again* checkbox in the dialog, or by selecting **When deleting resources in use** in the *Application* tab of the Preference dialog.
Rename:	Select an image file and click *Rename* to open the Rename dialog, containing two fields: **Old Name** (read-only, displays the current file name), and **New Name** (enter the new file name in this field). Click **OK** to rename the file.
Undo/Redo:	All actions in the Resource Manager can be undone and/or redone.
Import:	Click to invoke the Open dialog. Use this dialog to locate and select image and sound files to import into this tab. ***Note**: When images of any (supported) file type except PNG are imported into a project, the files are automatically converted to JPGs. For this reason, if you import (or paste) a file that has the same name as a previously imported file (even if it has a different extension), TPD4 automatically adds the "copy of" prefix to the file. PNGs are not converted because they are already sufficiently compressed.*
New:	This option is available only on the Dynamic Images tab (and replaces the Import button that is on the other tabs). Click to open the *Create Dynamic Image* dialog, which allows you to add dynamic images to your project.
Export:	Use this option to export one or more files to a specified directory. Use the *Choose Directory dialog* to pick the target directory.
List Style:	Click the down-arrow to open a drop-down list of the available display options for this tab: • **Small Icons** - lists the files in columns, with small file icons. • **List** - lists the files in a single column, with small file icons. • **Details** - lists the files with file size and image dimension descriptions. • **Thumbnails** - displays a thumbnail image of each file.

Resource Manager dialog - Images tab

The *Images* tab of the Resource Manager dialog (FIG. 59) provides a convenient way to import and preview all image files to be used in your project. Use this tab as a "library" of every image file that will be used in your project (for pages, popup pages, buttons and icons).

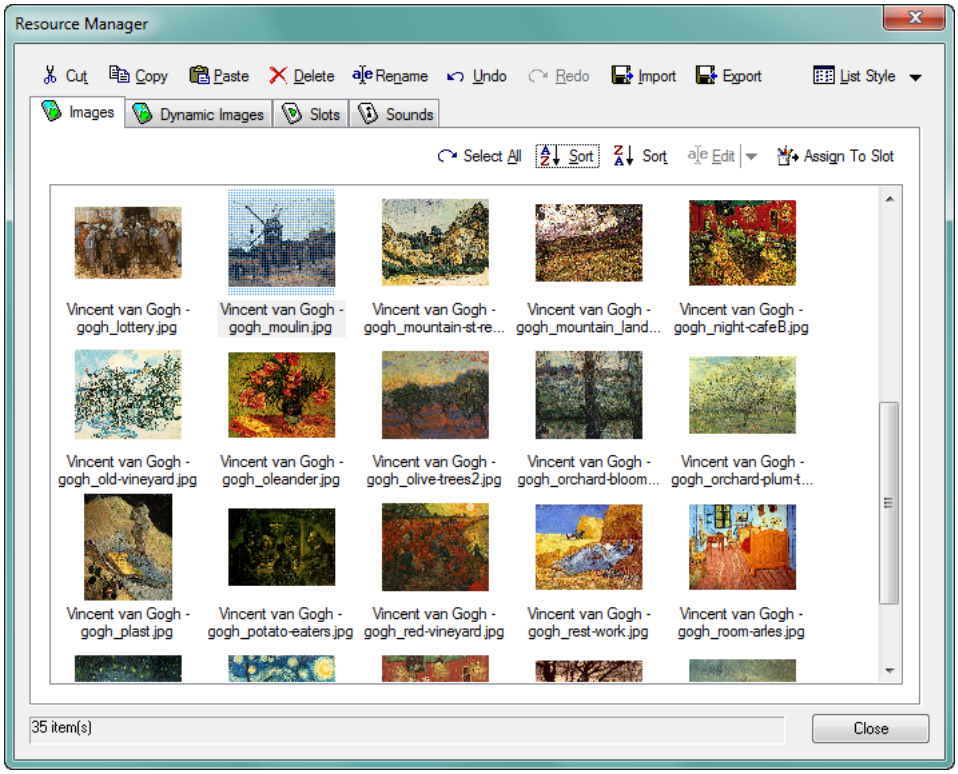


FIG. 59 Resource Manager dialog - Images tab

It is important to import all of your images to this tab first, before they are applied in the project, so that you can maintain an organized profile of all images in the project, regardless of their context (i.e. button state, page background, etc).

The Images tab provides the following command buttons:

Resource Manager dialog - Images tab	
Select All:	Click to select all images.
Sort:	Click to sort the image files either in ascending (A-Z) or descending (Z-A) order.
Edit:	Click to edit the file name of the selected item.
Assign To Slot:	Click to assign the selected image file(s) to slot(s).

Resource Manager dialog - Dynamic Images tab

The *Dynamic Images* tab of the Resource Manager dialog (FIG. 60) provides a convenient way to import and preview all dynamic image files to be used in your project.

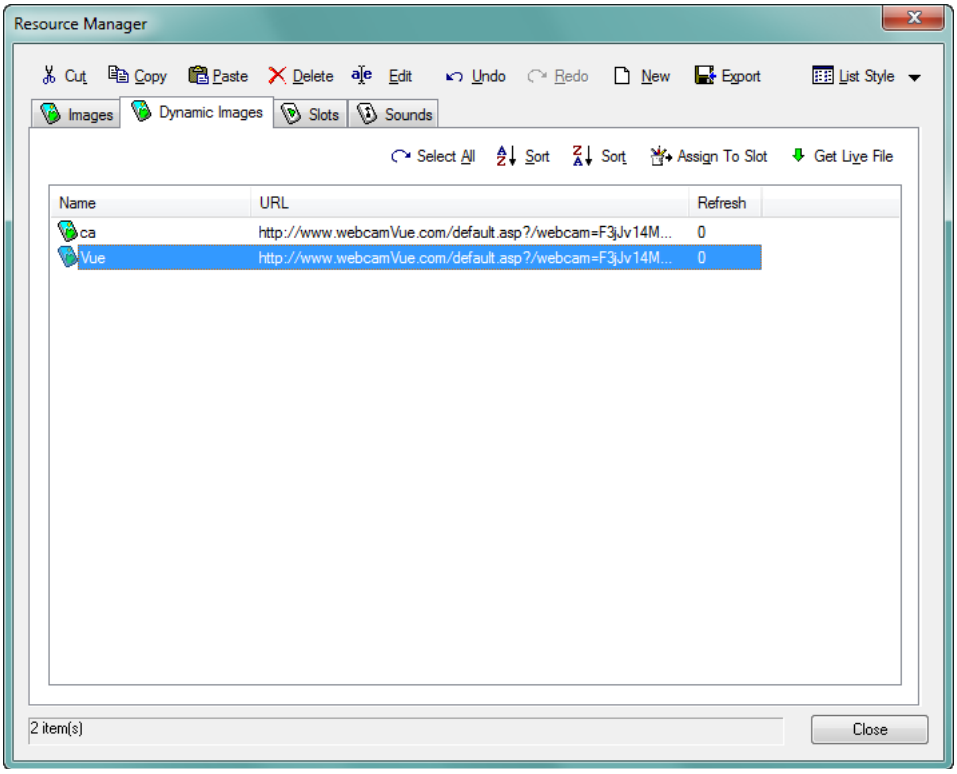


FIG. 60 Resource Manager dialog - Dynamic Images tab

Dynamic Images are images that exist on an HTTP server or FTP server, external to the panel. This feature requires you to specify a URL in place of image file.

Use this tab as a "library" of every dynamic image file that will be used in your project (for pages, popup pages, buttons and icons). It is important to import all of your dynamic images to this tab first, before they are applied in the project, so that you can maintain an organized profile of all images in the project, regardless of their context (i.e. button state, page background, etc).

Dynamic images can be refreshed at specified regular intervals or via the **Panel > Refresh Dynamic Images** option.

The Dynamic Images tab provides the following command buttons:

Resource Manager dialog - Dynamic Images tab	
Select All:	Click to select all images.
Sort:	Click to sort the image files either in ascending (A-Z) or descending (Z-A) order.
Assign To Slot:	Click to assign the selected Image file(s) to slot(s).
Get Live File:	Click to update the dynamic image.

Resource Manager dialog - Slots tab

The *Slots* tab of the Resource Manager dialog (FIG. 61) provides a convenient way to preview and manage all image and sound files that are being used in your project.

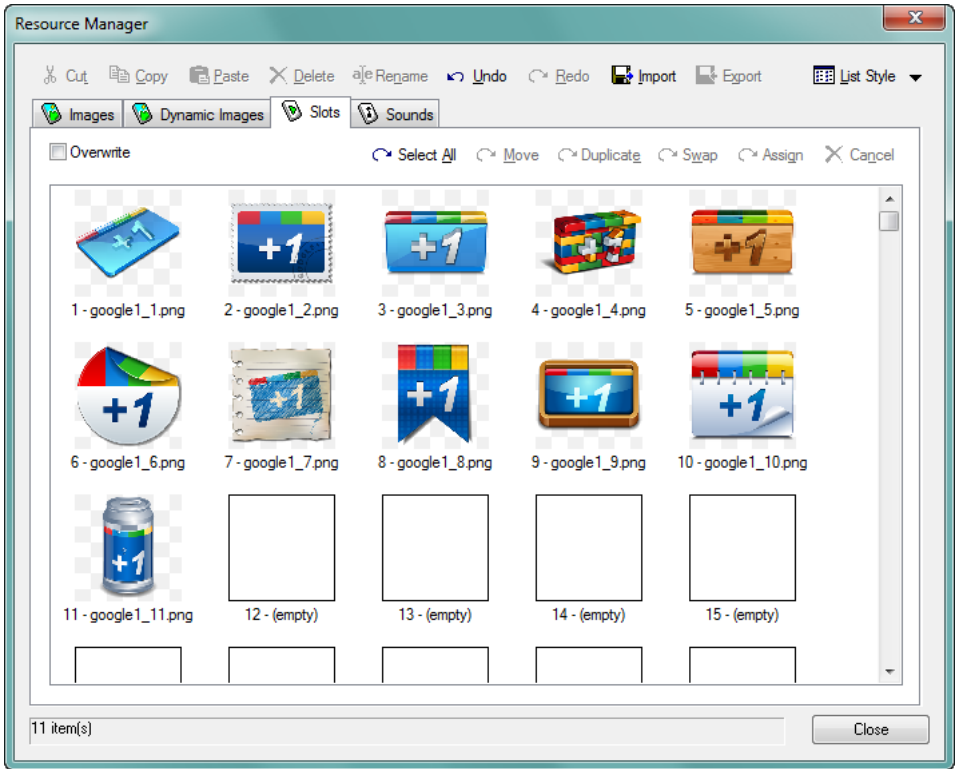


FIG. 61 Resource Manager dialog - Slots tab

Where the Images and Sounds tabs contain "libraries" of all Image and Sound files (even if they have not been assigned to a slot), the Slot tab lists only those image and sound files that are currently assigned to a slot. Once a Image or Sound has been assigned to a slot in the Resource Manager, it is considered to be an Icon.

All image and sound files must be assigned to a slot before they can applied to pages, popup pages and/or buttons as Icons. Once an image or sound file has been assigned a slot, it is available for selection as an icon through the Properties Control Window (States tab).

By default, the program limits you to 2000 slots per panel. However, you can use up to 9900 slots per panel if necessary by changing the maximum number of slots per panel. This is done vis the *Maximum Number of Slots Per Panel* dialog (**Panel > Set Maximum Icon Slots**).

If you don't intend to use a image or sound file as an Icon, there is no need to assign it to a slot (see Bitmaps vs. Icons).

The toolbar button in this tab contains several command options:

Resource Manager dialog - Slots tab	
Overwrite:	If this option is selected, slots will be overwritten in cases where an icon is already present in the target slot for a Move or Swap.
Select All:	Click to select all slots.
Move:	Use this option to move a slot assignment. First select a file / slot assignment, then click on the target slot for the selected file and click Move. The selected file is moved to the selected slot.
Duplicate:	Use this option to duplicate a selected file to another slot. First select the file that you want to duplicate, then select the slot that you want to target for the duplicated file, and click *Duplicate*. The selected file is duplicated in the targeted slot.

Resource Manager dialog - Slots tab (Cont.)	
Swap:	Use this option to swap two file / slot assignments. Ctrl + click to select two files, and click *Swap*. The two file / slot assignments are swapped.
Assign:	This command assigns the selected Image or Sound file(s) to slot(s).
Cancel:	Click to cancel the assignment process.

Resource Manager dialog - Sounds tab

The *Sounds* tab of the Resource Manager dialog (FIG. 62) provides a convenient way to import and preview all sound files to be used in your project.

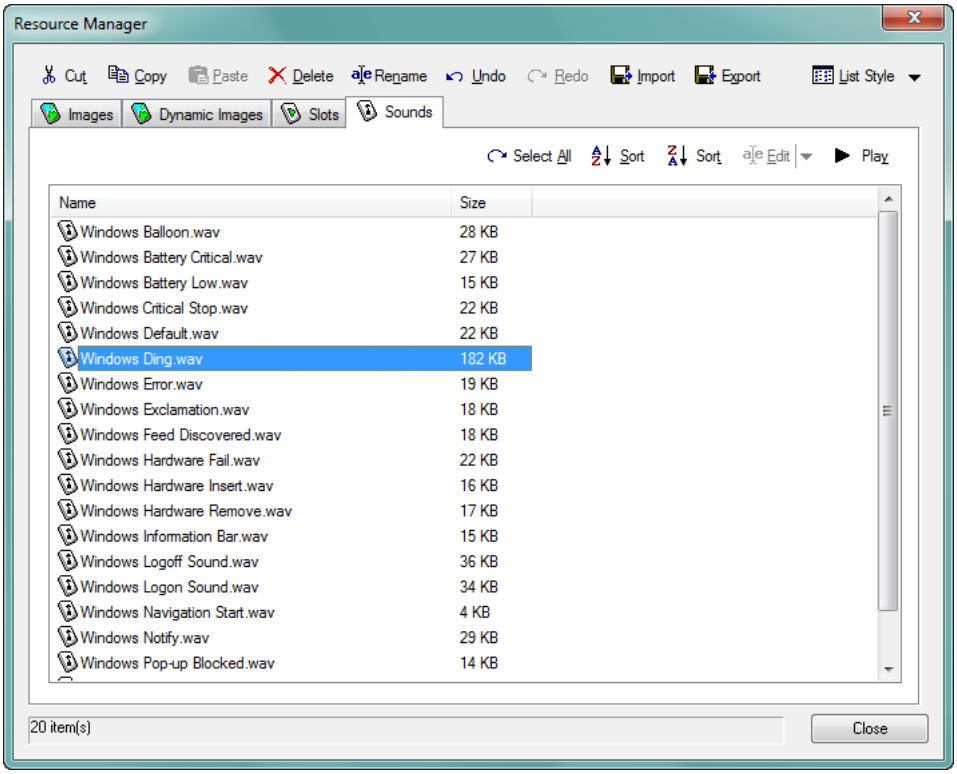


FIG. 62 Resource Manager dialog - Sounds tab

NOTE

TPD4 supports .WAV and .MP3 files.

The Slots tab provides the following command buttons:

Resource Manager dialog - Sounds tab	
Select All:	Click to select all sound files.
Sort:	Click to sort the sound files either in ascending (A-Z) or descending (Z-A) order.
Edit:	Click to edit the file name of the selected item.
Assign To Slot:	Click to assign the selected sound file(s) to slot(s).

Working With Images

Bitmap Images can be any supported image type. Images are applied to Pages, Popup Pages and Buttons via the *Bitmap* (State) Property.

- By default, bitmaps are drawn beneath Icons and Text. See the *State Draw Order* section on page 298 for details.
- Static Bitmap Images that have been imported into the Project are listed in the *Images* tab of the Resource Manager (see FIG. 59 on page 63).
- Dynamic Images that have been imported into the Project are listed in the *Dynamic Images* tab of the Resource Manager (see FIG. 60 on page 64).

Supported Image File Types

- TPD4 supports the following image file types:
- BMP (Windows bitmap)
- IFF (Interchange File Format)
- JPG (Joint Photographic Expert Group)
- PCT (Macintosh Pict)
- PCX (PC (Zsoft) Paintbrush)
- PNG (Portable Network Graphic)
- PSD (Photoshop)
- TGA (TrueVision Targa)
- WMF (Windows Meta File)
- EPS (Encapsulated Post Script)
- FPX (FlashPix)

Notes:

- Of all the image file formats supported by TPD4, only one accommodates transparency as a color: PNGs.
- For the transparent color to be interpreted correctly by TPD4, the PNG file must be saved with RGB colors.
- Unless you are actually using transparency, JPGs are recommended over PNGs, since they are usually slightly smaller in size.

Bitmaps vs. Icons

TPD4 uses two concepts of image files: *Bitmaps* and *Icons*. There are important differences in the way each type is treated:

Bitmaps

The term *Bitmap* is a generic term that describes any pixel-based image file. In TPD4, a Bitmap can be any supported image type (not limited to BMP files). Bitmaps and Dynamic Images are applied to Pages, Popup Pages and Buttons via the Bitmap (State) Property.

Icons

The term *Icon* refers to any image file that has been imported into the Project and assigned to a Slot position in the Resource Manager. Icons are different than Bitmaps in several ways:

- All imported images are considered to be Bitmaps, but an image cannot also be referenced as an Icon until it is assigned to a slot in the Resource Manager. Having an image assigned to a slot allows you to reference the same image as either a Bitmap or an Icon.
- When an image's slot position assignment is deleted from the Project, the image is still available as a Bitmap (and remains in any other slot it is assigned to), however, when a Bitmap is deleted, that image is removed from the project, including all slots to which it was assigned.
- Icons are drawn after Bitmaps, and are always appear on top of the Bitmap layer. See the *State Draw Order* section on page 298 for details.
- Icon Slot Assignments that have been specified in the Project are listed in the *Slots* tab of the Resource Manager.
- See the *Icons* section on page 83 for details.

Importing Image Files Into The Project

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the Resource Manager dialog.
2. Open the *Images* tab.
3. Click the **Import** button to invoke the *Open* dialog (FIG. 63).

FIG. 63 Open dialog - Overwrite resources with duplicate names checkbox

NOTE

*Click the **Overwrite resources with duplicate names** checkbox (at the bottom of the dialog) to automatically overwrite any existing files that have the same filename. If this option is selected, anytime a file with a duplicate name is imported, it will replace the original file on every button or page that referenced that filename in the Project.*

4. Locate and select the file(s) to import.
5. Click **Open** to import the files to the Images tab.

Notes On Importing Image Files

- When images of any supported file type (except PNG) are imported into a project, the files are automatically converted to JPGs. For this reason, if you import (or paste) a file that has the same name as a previously imported file (even if it has a different extension), TPD4 automatically adds the "copy of" prefix to the file. PNGs are not converted because they are already compressed.
- The largest image size supported on the panels is 1280x1024. Any image files that are imported to the project that are larger are automatically scaled down to fit.
- Consider assigning Slot positions to image files that you expect to use multiple times in the Project. See Assigning Images to Slot Positions for details.

NOTE

If you import an image file that has already been imported to the Images tab, the filename is changed to include the prefix "Copy of...". This is true even if the second version of the image file you have imported is of a different file type with a different extension.

Exporting Image Files From The Project

To export image files from Resource Manager dialog to a specified directory:

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the Resource Manager dialog.
2. Open the *Images* tab.
3. Select one or more files to export (Ctrl + click to select multiple files individually, or Shift + click to select a range of files).
4. Click the **Export** button. This opens the *Choose Directory* dialog (FIG. 64):

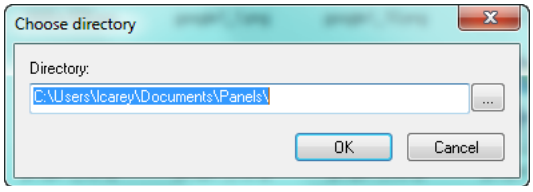


FIG. 64 Choose Directory dialog

5. Use the *Browse* button to locate a target directory for the files.
6. Click **OK**.

The program prompts you when the export is finished.

Assigning Images To Slot Positions

Once an image file is imported into the Project (via the *Resource Manager*), it can be assigned to a Slot position. Once an image is assigned to a Slot, it can be used as an *Icon* in your Project.

- Icons are applied to Pages, Popup Pages or Buttons via the **Icon Slot** (States) property.
- By default, Icons are displayed on top of bitmap images. The Draw Order can be changed in the *State Draw Order* dialog, accessed via the Draw Order (State Property).
- TPD4 supports up to 500 icon slot assignments.

To assign Slot positions to image files to be used as Icons in the Project:

1. Select **Panel** > **Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog.
2. Open the *Images* tab.
3. Select one or more files (Ctrl + click to select multiple files individually, or Shift + click to select a range of files).
4. Click **Assign To Slot**. This open the *Slots* tab.

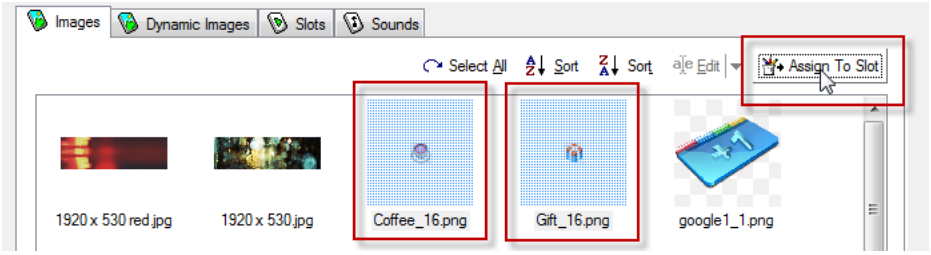


FIG. 65 Resource Manager - Images tab

5. If there are no images assigned to slots (the Slots tab is empty), click **Assign** (in the *Slots* tab) to assign the file to slot 1. If you selected multiple files, they will be assigned in the order in which they were selected.
   - If there are already some slot assignments present (in the Slots tab), the other slot assignments are shifted to accommodate the new assignments.
   - If you are assigning a single file to a slot, click to select the slot to which you want to apply the image file.
   - If you are assigning multiple files to multiple slots, click the slot where you want to begin pasting the set of images. The files will be pasted consecutively, in the order in which they were selected.
   - Use the *Overwrite* checkbox to automatically overwrite any pre-existing file assignments in the affected slots.

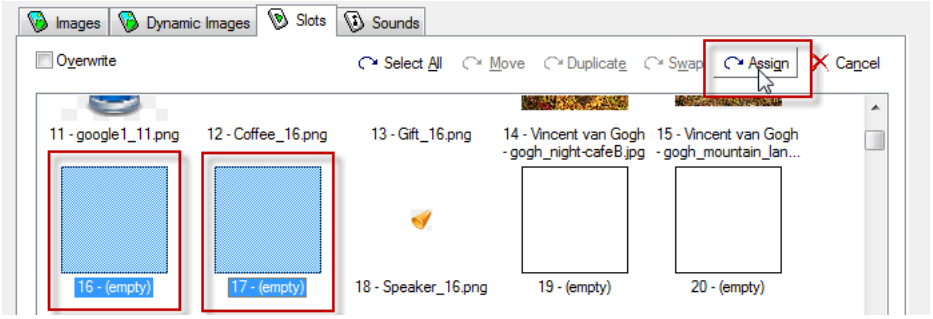


FIG. 66 Resource Manager - Slots tab

NOTE

When pasting multiple image files to the Slots tab, you must select the same number of slots as the number of images copied. For example, if you selected ten files to assign to slots, select ten slots before assigning the files. If you select just one slot, only the first file selected will be assigned. If you select five slots, only the first five files will be assigned.

Renaming Image Files

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog.
2. Open the *Images* tab.
3. Click the **Rename** button to invoke the *Rename* dialog (FIG. 67).

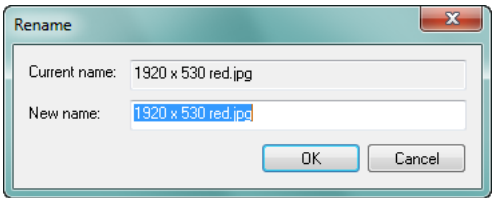


FIG. 67 Rename dialog

4. Enter the new file name in the *New Name* text field.
5. Click **OK** to close the *Rename* dialog.

Deleting Image Files From the Project

Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog.

Open the *Images* tab.

Select one or more files to delete (Ctrl + click to select multiple files individually, or Shift + click to select a range of files).

Click the **Delete** button.

The files are not deleted from the hard drive, just from this project.

If any of the files selected for deletion are used by the active project, the *Resource(s) In Use* dialog is displayed, with a listing of all files targeted for deletion, as well as the Page(s) on which each file is used (FIG. 68):

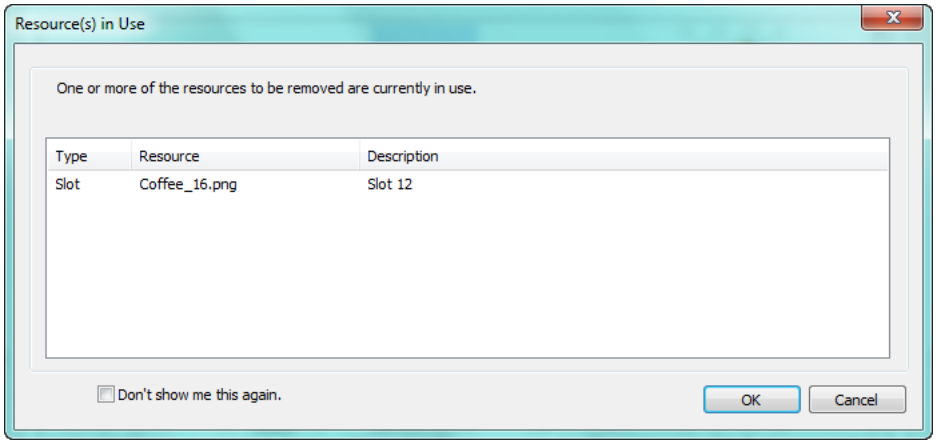


FIG. 68 Resource(s) In Use dialog

By default, the *Resource(s) In Use* dialog is set to display any time a used resource is deleted.

However, you can toggle the display of this dialog either by selecting the **Don't show me again** checkbox in the dialog, or by selecting **When deleting resources in use** in the *Application* tab of the Preference dialog (FIG. 69):

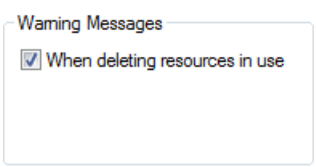


FIG. 69 Preference dialog - Application tab: Warning Messages option

Working With Dynamic Images

Use the **Dynamic Images** tab of the *Resource Manager* (see FIG. 60 on page 64) to manage dynamic image files.Dynamic Images are images that exist on an HTTP server or FTP server, external to the panel.

To use dynamic images in your project, specify a URL rather than a directory path to a static image file.

- Dynamic images can be applied to all button types except Computer Control and Text Area buttons.
- The *Dynamic Images* tab of the Resource Manager dialog provides a convenient way to import and preview all dynamic image files to be used in your project.
- Dynamic images can be refreshed at specified regular intervals or via the **Panel > Refresh Dynamic Images** option.
- Use the *Scale Bitmap To Fit* state property to automatically scale (down only) the dynamic image to fit the button in which it is being displayed.

NOTE

In addition to Dynamic Images, TPDesign4 also supports DynaMo Dynamic Images (motion-JPEG), as well as DynaMo Resource Images (enhanced Dynamo images).

Adding Dynamic Image Files To Your Project

To add dynamic image files to the *Dynamic Images* tab of the Resource Manager dialog:

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog.
2. Open the *Dynamic Images* tab.
3. Click the **New** button to invoke the *Create Dynamic Image* dialog (FIG. 70):

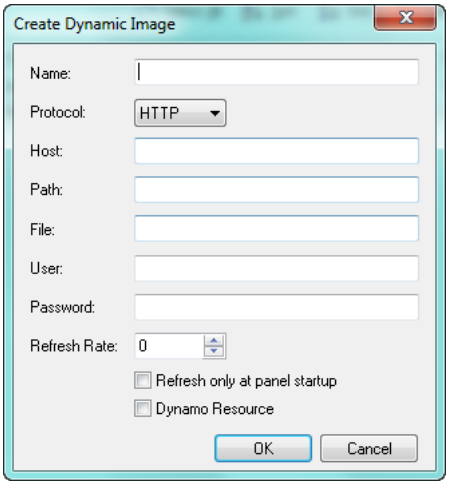


FIG. 70 Create Dynamic Image dialog

4. Fill in the fields provided:

Create Dynamic Image dialog options	
Name:	Enter a name for the dynamic image resource.
Protocol:	Select the desired protocol (HTTP / FTP).
Host:	Enter the host name, which must be a fully qualified DNS or IP address.
Path:	The path must be a valid HTTP URL minus the protocol and host. ***Note**: The only exception to this is the inclusion of special escape sequences and in the case of the FTP protocol, regular expressions.*
File:	Enter a file name that must be the full path to the location of the file or program that will return the resource.
User:	Enter the user name for authentication.
Password:	Enter the password for authentication.

Create Dynamic Image dialog options (Cont.)	
Confirm:	Retype the password to confirm. ***Note**: To allow other users to access the files via FTP without password protection, leave the User and Password fields blank. The user must type either "Anonymous" or "Guest" to access the specified FTP site.*
Refresh Rate:	Use the up/down arrows to adjust the number of seconds between refreshes in which the resource is downloaded again. Refreshing resources will cause the button displaying that resource to refresh as well. The default value is 0, which means that the resource is only downloaded once.
Refresh only at Panel Startup:	This option is only available if the Refresh Rate is set to zero, and causes the dynamic image to refresh only upon restart of the panel, as opposed to upon each visit to the page (as is the default).
Dynamo Resource:	TPDesign4, and many AMX Touch Panels support "enhanced" or "accelerated" Dynamo images. In TPDesign4, these are referred to as Dynamo Resource images, as opposed to Dynamic (static) or Dynamo (non-accelerated) images. Dynamo Resource images are essentially the same as standard Dynamo images with one key difference: the playback of Dynamo Resource images is accelerated to up to 30 frames-per-second. ***Note**: The Dynamo Resource option is only displayed if the currently selected panel-type supports Dynamo Resource images.*

5. Click **OK** to add the file to the *Dynamic Images* tab.

Assigning Dynamic Images to Slot Positions

To assign Slot positions to dynamic images that you expect to use multiple times in the Project:

1. Select **Panel** > **Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog.
2. Open the *Dynamic Images* tab.
3. Select one or more files (Ctrl + click to select multiple files individually, or Shift + click to select a range of files).
4. Click **Assign To Slot**. This open the *Slots* tab.

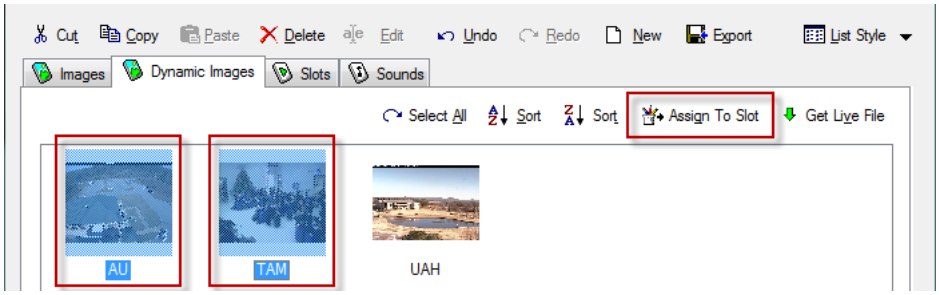


FIG. 71 Resource Manager - Images tab

5. If there are no images assigned to slots (the Slots tab is empty), click **Assign** (in the *Slots* tab) to assign the file to slot 1. If you selected multiple files, they will be assigned in the order in which they were selected.
   - If there are already some slot assignments present (in the Slots tab), the other slot assignments are shifted to accommodate the new assignments.
   - If you are assigning a single file to a slot, click to select the slot to which you want to apply the image file.
   - If you are assigning multiple files to multiple slots, click the slot where you want to begin pasting the set of images. The files will be pasted consecutively, in the order in which they were selected.
   - Use the *Overwrite* checkbox to automatically overwrite any pre-existing file assignments in the affected slots.

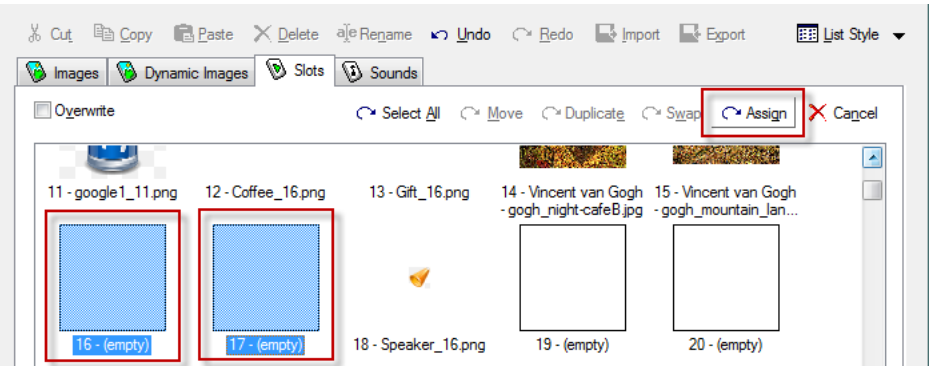


FIG. 72 Resource Manager - Slots tab

NOTE

When pasting multiple image files to the Slots tab, you must select the same number of slots as the number of images copied. For example, if you selected ten files to assign to slots, select ten slots before assigning the files. If you select just one slot, only the first file selected will be assigned. If you select five slots, only the first five files will be assigned.

Adding a Dynamic Image To The Project - Example

The following example steps you through the process of adding a dynamic image to the Resource Manager:

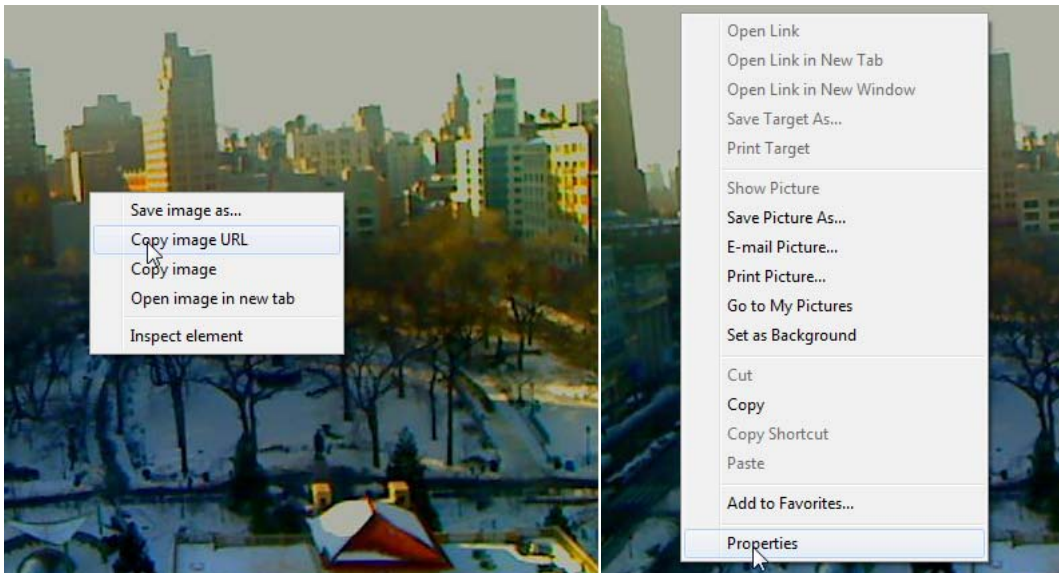
1. In your browser, locate the Dynamic Image that you want to use (FIG. 73).

http://www.opentopia.com/images/data/cams/14263/big.jpg

FIG. 73 Example Dynamic Image

2. Copy the Dynamic Image's URL to the clipboard. In this example the image URL is: **http://www.opentopia.com/images/data/cams/14263/big.jpg**

   The specific method will depend on your browser. For example Google Chrome provides the option to right-click on the image and select **Copy Image URL**, while IE provides the option to right-click on the image and select **Properties** to view the image properties including the URL in the *Properties* dialog (FIG. 74):



Google Chrome - *Copy Image URL* IE - *Properties* (opens the *Properties* dialog)

FIG. 74 Dynamic Image - Copy Image URL to clipboard

3. In the *Dynamic Images* tab of the Resource Manager, click **New** to open the *Create Dynamic Image* dialog (FIG. 75).

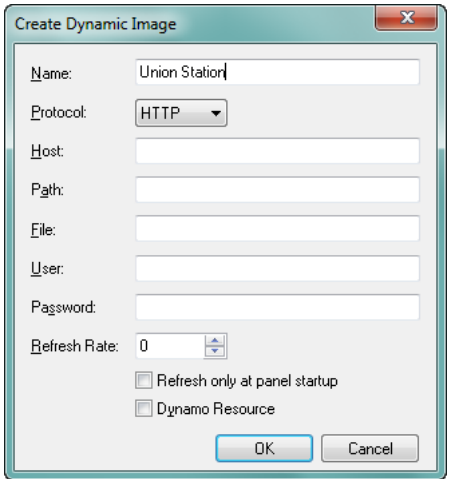


FIG. 75 Create Dynamic Image dialog

4. In the **Name** field, enter a descriptive name for this Dynamic Image (in this example - "Union Station").

5. Paste the copied URL into the **Host** field. Note that the pasted URL consists of not only the Host address information, but also protocol and path information as well, so it necessary to separate it into the different elements represented in the *Create Dynamic Image* dialog.

Here is the full string provided by the image source for this image (FIG. 76):

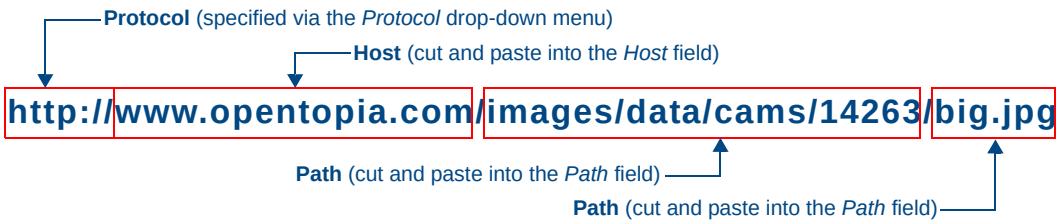

Protocol (specified via the *Protocol* drop-down menu)
Host (cut and paste into the *Host* field)
http://www.opentopia.com/images/data/cams/14263/big.jpg
Path (cut and paste into the *Path* field)
Path (cut and paste into the *Path* field)

FIG. 76 Full URL string for example Dynamic Image

a. Cut the file portion off the end of the URL and paste it into the **File** field (excluding the backslash).
b. Cut the path portion off the end of the URL and paste it into the **Path** field (excluding the backslash).
c. Cut the host portion off the end of the URL and paste it into the **Host** field.
d. Since *HTTP* is already selected (by default) as the protocol (via the *Protocol* drop-down), it is not required as part of the host information. Verify that *HTTP* is selected as the **Protocol**, and delete "HTTP://" from the pasted string.
e. The **User** and **Password** fields are left blank, since no credentials are required by the Host to access the webcam in this example.
f. The **Refresh Rate** should be left to zero (default setting), to allow the image to update automatically based on the source's refresh rate.

NOTE

When the Refresh Rate is set to zero, the Refresh Only at Panel Startup option is available. This option directs the panel to refresh this image only when the panel is rebooted.

At this point, the *Host* field should include the host information only, and the other fields should be filled in respectively (FIG. 77):

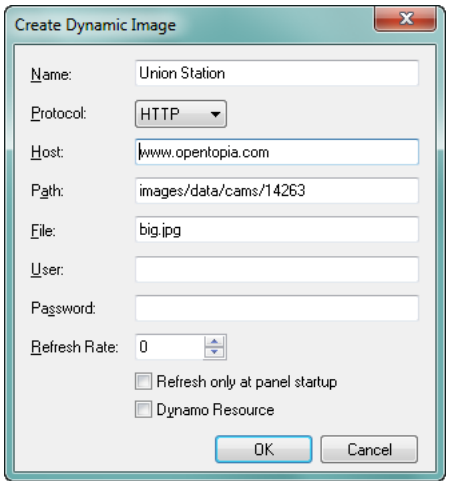


FIG. 77 Create Dynamic Image dialog - Example Image URL information entered

6. Click **OK** to close the *Create Dynamic Image* dialog and add the new image to the *Dynamic Images* tab of the Resource Manager (FIG. 78):

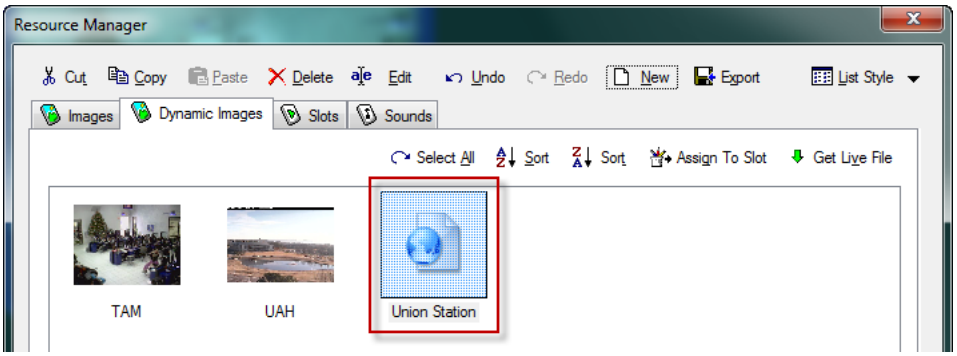


FIG. 78 Resource Manager - Dynamic Images tab

7. Click **Get Live File** to update the dynamic image icon with a preview image (FIG. 79):

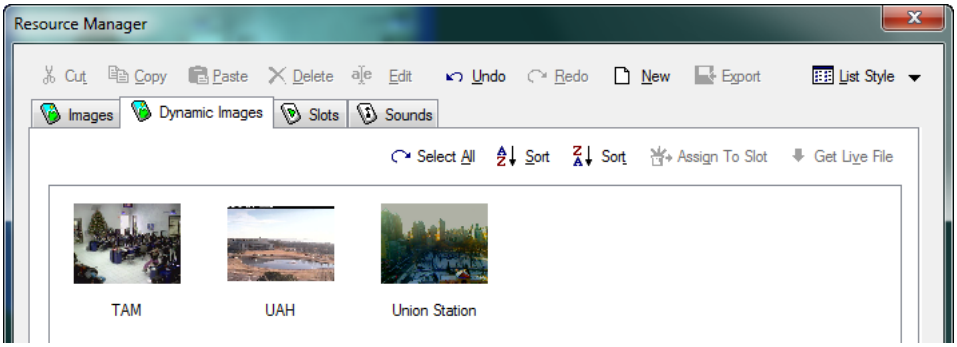


FIG. 79 Resource Manager - Dynamic Images tab (Get Live File)

Now that the dynamic resource has been added to the Resource Manager, it is available to be applied to Pages, Popup Pages or Buttons (as a bitmap image).

Applying a Dynamic Image to a Page, Popup Page or Button - Example

1. Select a Page, Popup Page or Button.
2. In the Properties window (*States* tab) - **Bitmap** property, click the Browse (**...**) button to open the *Select Resource* dialog (FIG. 80).

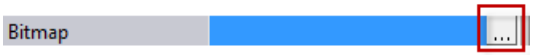


FIG. 80 Properties Window (States tab) - Bitmap

3. Open the *Dynamic Images* tab and select the dynamic image created above (FIG. 81)

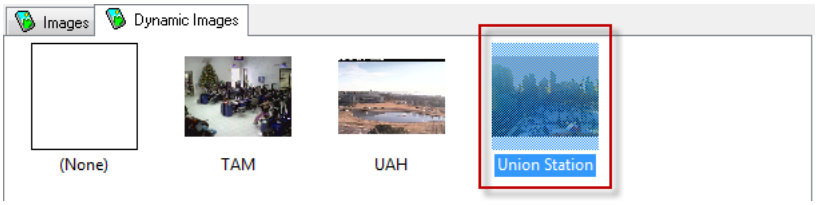
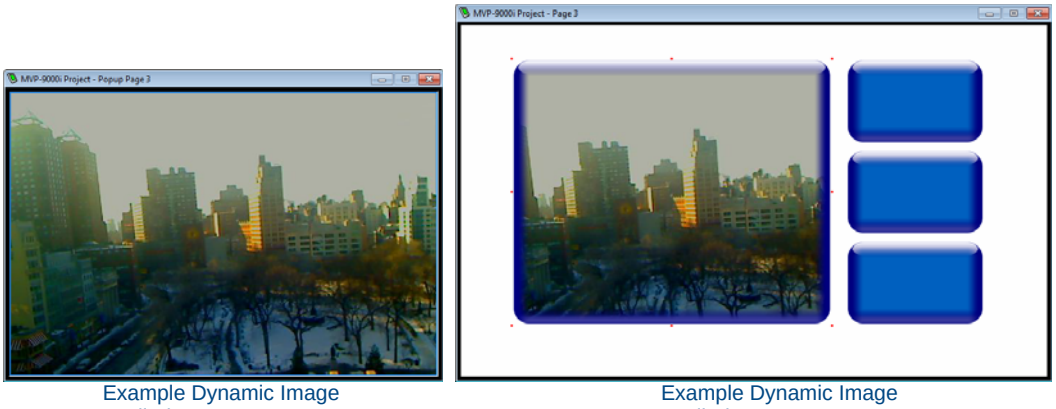


FIG. 81 Select Resource dialog (dynamic Images tab) - Example Dynamic Image selected

4. Click **OK**.
5. The image is applied to the selected Page, Popup Page or Button (FIG. 82):



Example Dynamic Image applied to a Popup Page

Example Dynamic Image applied to a Button

FIG. 82 Example Dynamic Image applied to a Popup Page and a Button

Editing Dynamic Images

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog.
2. Open the *Dynamic Images* tab.
3. Click the **Edit** button to invoke the *Edit Dynamic Image* dialog (FIG. 83):

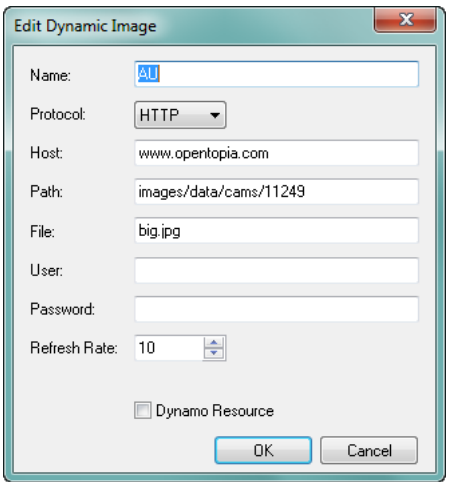


FIG. 83 Edit Dynamic Image dialog

4. Edit the image information as desired.
5. Click **OK** to close the *Edit Dynamic Image* dialog.

Deleting Dynamic Image Files From the Project

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager* dialog.
2. Open the *Dynamic Images* tab.
3. Select one or more files to delete (Ctrl + click to select multiple files individually, or Shift + click to select a range of files).
4. Click the **Delete** button.

DynaMo™ Dynamic Images

DynaMo™ is an extension of the Dynamic images that provides playback of M-JPEG images. *Dynamo images* are motion-JPEG (or "M-JPEG") images that exist on an HTTP server or FTP server, external to the panel.

Dynamo images can include streaming webcam images, which can be displayed on a page, popup or button. Like Dynamic images, this feature requires you to specify a URL or IP Address in place of image file.

The process of creating Dynamo images is identical to that for setting up other Dynamic images (see the *Adding Dynamic Image Files To Your Project* section on page 71. The difference is simply in the accelerated rate at which Dynamo images refresh.

Adding a Dynamo Image To The Project

The process of creating Dynamo images is identical to that for setting up other Dynamic images.

See the *Adding Dynamic Image Files To Your Project* section on page 71 for details.

Motion JPEG Cameras and Servers that provide Motion JPEG streaming output

A number of leading manufacturers are offering a variety of equipment that provides Motion JPEG streaming output. Below is a sample list of the most popular manufacturers and models:

Motion JPEG Cameras and Servers		
Manufacturer	Network camera	Network video server
Axis	205 Network Camera 2100 Network Camera 2120 Network Camera 2420 Network Camera	241Q Video Server 4 Inputs 241S Video Server 1 Input
Panasonic	KX-HCM280 Color Pan Tilt Zoom KX-HCM10 Indoor Pan Tilt KX-HCM250 Wireless Pan Tilt KX-HCM230 Outdoor Pan Tilt	
Sony	SCN-RZ30N Pan/Tilt/25x Zoom	
Trendnet	TV-IP301	
Vivotek	IP2111 Network Camera IP2112 Network Camera	VS2402 Video Server

Network Path Information

While AMX strives to bring to the market innovative features such as support for Motion JPEG, at points we have to work through the different ways manufacturers implement standards. In the case of streaming network cameras/servers, manufacturers are using somewhat different syntax for requesting Motion JPEG streams from their networked cameras and servers.

For example, many networked cameras/servers are accessed using a regular HTML browser, and the camera/server is serving up an HTML page with a video window being a part of the page.

For Dynamo, however, the panel needs to access only the M-JPEG stream, not the entire HTML page served by the camera/server by default.

Depending on the camera/network video server type you are using, you may need to consult product documentation, or if necessary, contact manufacturer's technical support. In general, however, what is being sent to the camera/server in the path is a CGI call that may have additional parameters based on the feature set of the camera/server and the syntax the manufacturer requires. What follows are examples for some of most popular manufacturers.

Like with any other type of equipment AMX controls, manufacturer's documentation and customer support are the most reliable ways of obtaining information on the device's communication protocol/syntax. This can also help you fully utilize optional features available on that specific device.

However, at times it can be difficult to get the needed information with respect to the protocol/syntax of a particular camera/server. One way to work around this is connecting to your networked camera or video server using an Internet browser that captures the location or path to the stream.

An example of such browser is Mozilla FireFox. Using the browser you can go to your network device's IP address, left click on the streaming image and select *Copy Image Location*.

Dynamic Image Settings - Example 1: Axis

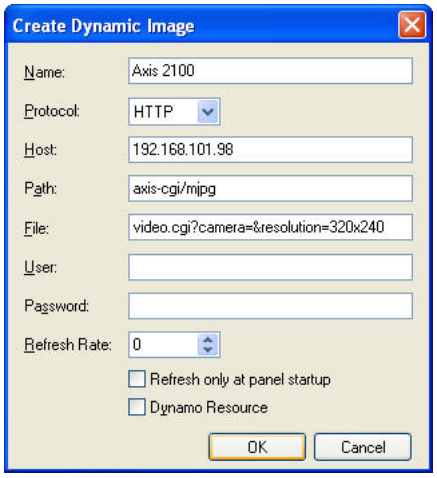


FIG. 84 Dynamic Image Settings - Example 1: Axis

- **Manufacturer**: Axis
- **Model**: 2100 (camera)
- **Path**: axis-cgi/mjpg/video.cgi?camera=&resolution=320x240

NOTE

Axis equipment supports a number of resolutions, and therefore requires that the target resolution be indicated. Each camera can also have a camera ID number but that is optional, just as a number of other features that can be indicated in the path.

Dynamic Image Settings - Example 2: Panasonic

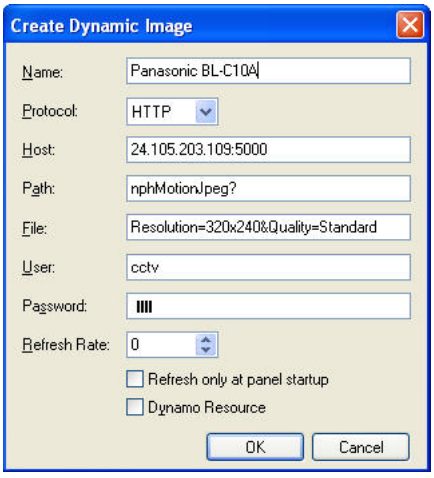


FIG. 85 Dynamic Image Settings - Example 2: Panasonic

- **Manufacturer**: Panasonic
- **Model**: BL-C10A (camera)
- **Path:** nphMotionJpeg?resolution=320x240&Quality=Standard

Dynamic Image Settings - Example 3: Vivotek

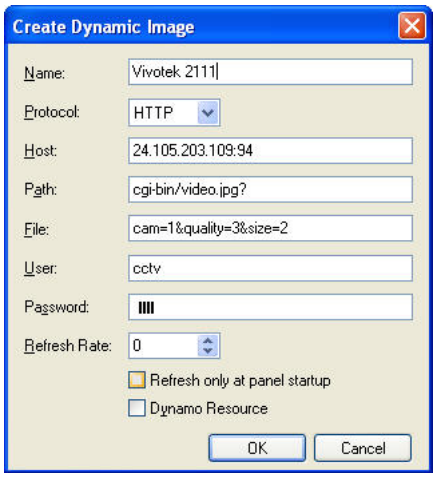


FIG. 86 Dynamic Image Settings - Example 3: Vivotek

- **Manufacturer**: Vivotek
- **Model**: 2111 (camera)
- **Path**: cgi-bin/ video.jpg?cam=1&quality=3&size=2

Working With Trendnet IP Cameras

To get a streaming image from the **TV-IP301** Trendnet IP camera on to a dynamic image window of a touch panel:

1. Configure the camera for **JPEG** and **15fps**. The default settings of "640x480" and "Highest Quality" should be OK.
2. In TPD4, set the dynamic image properties to:
   - **Protocol**: *HTTP* (default)
   - **Host**: (the default IP of this camera is *192.168.1.30*)
   - **Path**: *goform*
   - **File**: *video2*
   - **user & password** are blank
   - **Refresh Rate**: *1 (or more)*

DynaMo™ Resource Images

TPDesign4, and a select number of AMX Touch Panels support "enhanced" or "accelerated" Dynamo images.

In TPDesign4, these are referred to as *Dynamo Resource* images, as opposed to Dynamic (static) or Dynamo (non-accelerated) images.

Dynamo Resource images are essentially the same as standard Dynamic or Dynamo images with one key difference: the playback of Dynamo Resource images is accelerated to up to 30 frames-per-second.

The process of adding a Dynamo Resource image to the Resource Manager is identical to that of adding a standard Dynamic (or Dynamo) image, with one exception: select the **Dynamo Resource** option at the bottom of the *Create Dynamic Image* dialog (FIG. 87):

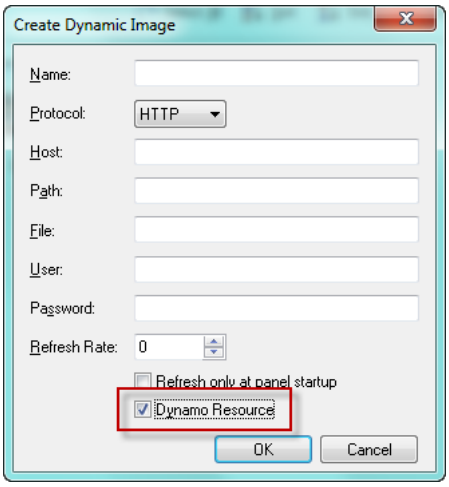


FIG. 87 Create Dynamic Image dialog

Adding an Dynamo Resource Image To The Project

The process of adding a Dynamo Resource image to the Resource Manager is identical to that of adding a standard Dynamic (or Dynamo) image, with one exception: select the **Dynamo Resource** option at the bottom of the *Create Dynamic Image* dialog.

This option is only displayed if the selected panel-type supports Dynamo Resource Images.

NOTE

If there are multiple Dynamo images displayed on a single page, only one of them should be set as a Dynamo Resource image. While TPDesign4 will allow you to place more than one Dynamo Resource image on a page, the frame-rate on all Dynamo Resource images may be reduced as a result.

Dynamic images that have the Dynamo Resource property set are displayed with a modified icon, which resembles the standard Dynamic Image icon but features a lightning bolt (FIG. 88):

FIG. 88 Resource Manager - Dynamo Resource Image icon

Scaling and Cropping of Dynamo Resource Images

Dynamo Resource Images have specific scaling/cropping options available via the Scale Bitmap to Fit (State) property for any state that has a Dynamo Resource image assigned to the "Bitmap" property.

The *Scale Bitmap To Fit* options presented here depend on the panel type selected:

- **No** - The Dynamo Resource image will not be scaled at all, and the image will be arbitrarily centered on the container button, popup or page. If the Dynamo Resource image is larger than it's container, the image will be cropped on all sides by equal amounts.

  This is the default setting.

  Use the *Bitmap Justification* (State) property to position the dynamic image bitmap within the button borders.
- **2x** - The Dynamo Resource image is doubled in size.

  Note that this option is only available for Dynamo Resource Images (not for Dynamo Dynamic Images).

  If the resulting image is larger than it's container, the image will be cropped on all sides by equal amounts.
- **Scale To Fit** - This option automatically resizes the Dynamo Resource image to fit the container button, popup or page.

Copy/Paste Operations on Dynamo Resource Images

- Paste operations on a button with a Dynamo Resource image from a panel-type that supports Dynamo Resource images, with a *Scale Bitmap to Fit* setting of **2x**, into a panel-type that doesn't support Dynamo Resource images results in the *Scale Bitmap to Fit* property value being set to **No** in the pasted button for all states.
- Paste operations of a button with a Dynamo Resource image from an OMAP panel-type that supports Dynamo acceleration with a *Scale Bitmap to Fit* property value of **Scale to Fit**, into an FPGA panel-type that supports Dynamo acceleration results in the *Scale Bitmap to Fit* value being set to **No** in the pasted button for all states.
- Any paste operation that causes a Dynamo Resource image to be imported into a target panel project that does not support Dynamo Resource images will cause the *Scale Bitmap to Fit* property value to be reset on the imported resource.

Working With Slots

Once an image file is imported into the Project (via the Resource Manager), it can be assigned to a Slot position in the **Slots** tab of the *Resource Manager* dialog (see FIG. 61 on page 65).

Once an image is assigned to a Slot, it can be used as an **Icon** in your Project (see below).

- Icons are applied to Pages, Popup Pages or Buttons via the Icon Slot (States) property.
- By default, Icons are displayed on top of bitmap images. The Draw Order can be changed in the *State Draw Order* dialog, accessed via the Draw Order (State Property). See the *Changing the State Draw Order for Selected States* section on page 299 for details.
- TPD4 supports up to 500 icon slot assignments.

Icons

The term *Icon* refers to any image file that has been imported into the Project and assigned to a Slot position in the Resource Manager. Icons are different than Bitmaps in several ways:

- All imported images are considered to be Bitmaps, but an image cannot also be referenced as an Icon until it is assigned to a slot in the Resource Manager. Having an image assigned to a slot allows you to reference the same image as either a Bitmap or an Icon.
- When an image's slot position assignment is deleted from the Project, the image is still available as a Bitmap (and remains in any other slot it is assigned to), however, when a Bitmap is deleted, that image is removed from the project, including all slots to which it was assigned.
- Icons occupy slots in the Resource Manager; Bitmaps cannot.
- By default, Icons are drawn on top of Bitmaps - see *State Draw Order* section on page 298for details.
- Icon Slot Assignments that have been specified in the Project are listed in the *Slots* tab of the Resource Manager.

Assigning Images to Slot Positions

See the *Assigning Images To Slot Positions* section on page 69.

Assigning Dynamic Images to Slot Positions

See the *Assigning Dynamic Images to Slot Positions* section on page 72.

Moving Slot Assignments

To move (change) a slot assignment position:

1. Select **Panel** > **Resource Manager** (or click the toolbar button) to open the *Resource Manager*.
2. Open the *Slots* tab.
3. Select the Slot assignment that you want to move.
4. Ctrl + click on the desired target slot.
5. Click the **Move** button (FIG. 89):

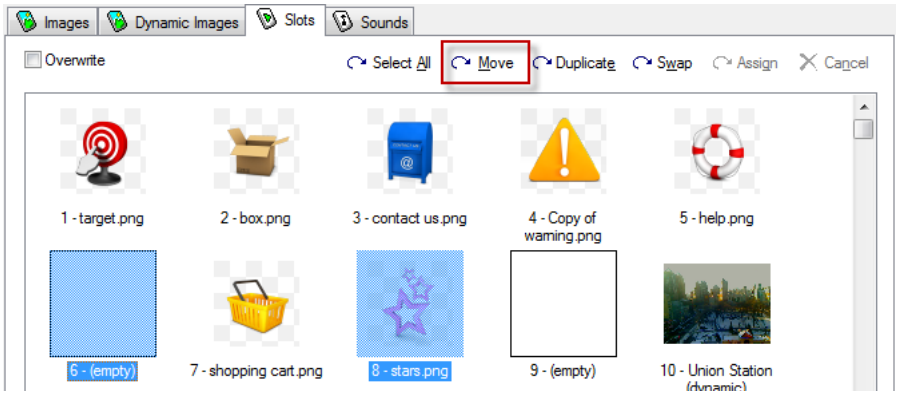


FIG. 89 Resource Manager (Slots tab) - Moving Slot Assignments

The Slot Assignment is moved to the selected slot position.

Duplicating Slot Assignments

To duplicate a slot assignment:

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager*.
2. Open the *Slots* tab.
3. Select the Slot assignment that you want to duplicate.
4. Ctrl + click on the slot in which the duplicate will be added.
5. Click the **Duplicate** button (FIG. 90):

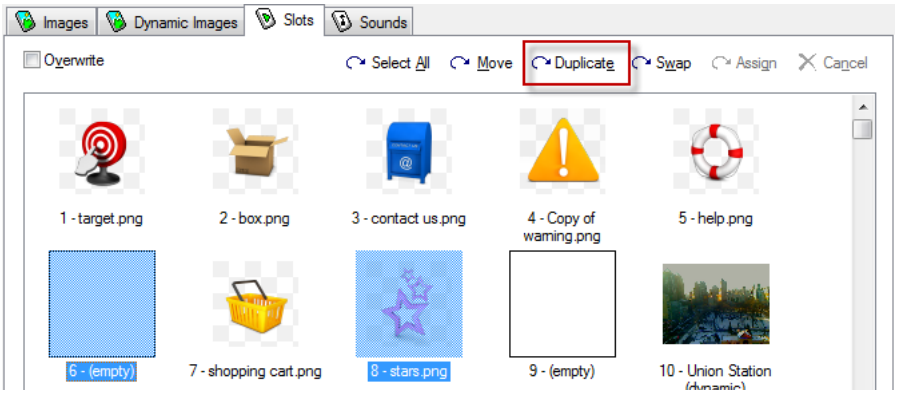


FIG. 90 Resource Manager (Slots tab) - Duplicating Slot Assignments

The selected icon is duplicated in the selected target slot.

Swapping Slot Assignments

To swap two slot assignment positions:

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager*.
2. Open the *Slots* tab.
3. Select a Slot assignment.
4. Ctrl + click on a second slot.
5. Click the **Swap** button (FIG. 91):

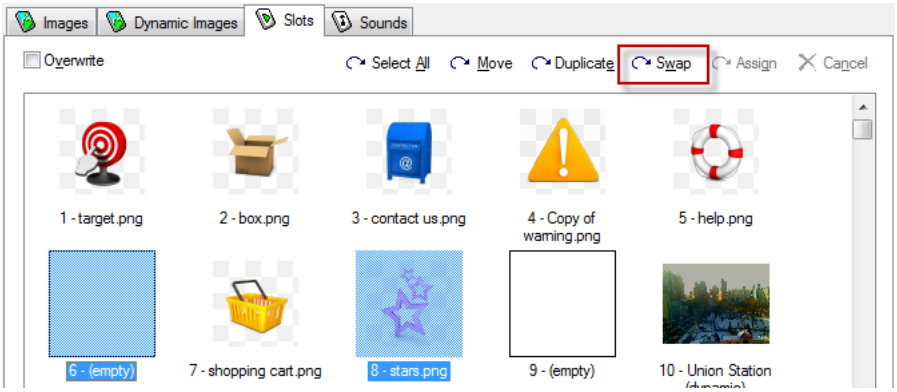


FIG. 91 Resource Manager (Slots tab) - Swapping Slot Assignments

The two Slot Assignments are swapped - they replace each others original position.

Deleting Slot Assignments From The Project

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager*.
2. Open the *Slots* tab.
3. Select one or more slot assignments to delete (Ctrl + click to select multiple files individually, or Shift + click to select a range of slots).
4. Click the **Delete** button (FIG. 92):

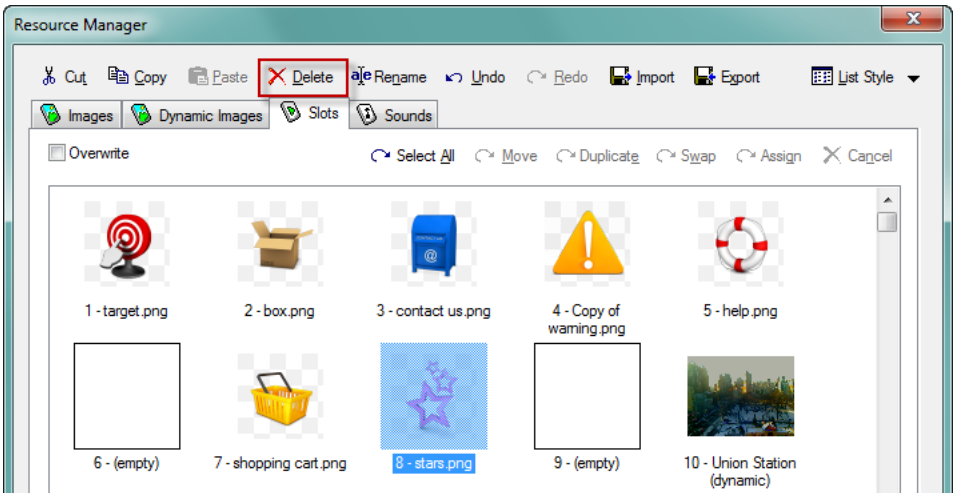


FIG. 92 Resource Manager (Slots tab) - Deleting Slot Assignments

When an image's slot position assignment is deleted from the Project, the image is still available as a Bitmap (and remains in any other slot it is assigned to), however, when a Bitmap is deleted, that image is removed from the project, including all slots to which it was assigned. See the *Deleting Image Files From the Project* section on page 70 for details.

Working With Sounds

Sounds can be either WAV or MP3 sound files.

- Sounds are applied to Pages, Popup Pages and Buttons via the *Sound* (State) Property.
- Sound files that have been imported into the Project are listed in the *Sounds* tab of the Resource Manager.

Importing Sound Files Into The Project

1. Select **Panel > Resource Manager** (or click the toolbar button) to open the *Resource Manager*.
2. Open the *Sounds* tab.
3. Click the **Import** button to invoke the *Open* dialog (FIG. 63).

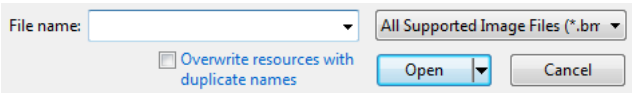


FIG. 93 Open dialog - Overwrite resources with duplicate names checkbox

NOTE

*Click the **Overwrite resources with duplicate names** checkbox (at the bottom of the dialog) to automatically overwrite any existing files that have the same filename. If this option is selected, anytime a file with a duplicate name is imported, it will replace the original file on every button or page that referenced that filename in the Project.*

4. Locate and select the file(s) to import.
5. Click **Open** to import the files to the *Sounds* tab.

If you import an sound file that has already been imported to the Sounds tab, the filename is changed to include the prefix "Copy of...". This is true even if the second version of the file you have imported is of a different file type with a different extension.

Sorting Sound Files

1. Select **Panel** > **Resource Manager** (or click the toolbar button) to open the *Resource Manager*.
2. Open the *Sounds* tab.
3. Click the **Sort A-Z** button to sort the sound files in descending alphabetical order.
4. Click the **Sort Z-A** button to sort the sound files in ascending alphabetical order.

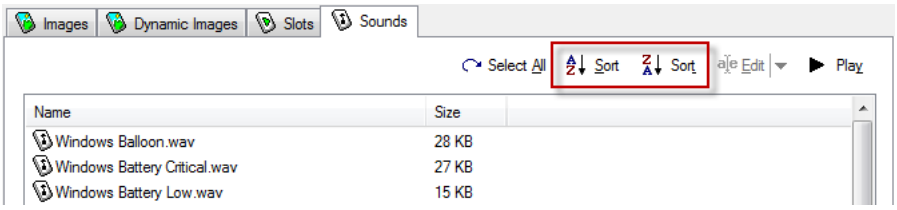


FIG. 94 Resource Manager (Sounds tab) - Sorting Sound Files

Previewing Sound Files

1. Select **Panel** > **Resource Manager** (or click the toolbar button) to open the *Resource Manager*.
2. Open the *Sounds* tab.
3. Select a Sound file.
4. Click the **Play** button.

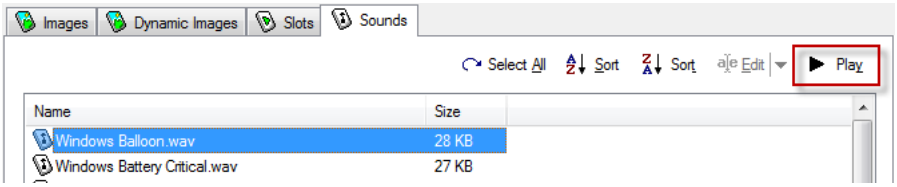


FIG. 95 Resource Manager (Sounds tab) - Playing a Sound File

Editing Image and Sound Files Using External Programs

TPD4 supports the use of external programs for editing image and/or sound files used in your project. You must first associate one or more external editing programs with Image files, and another for Sound files.

Once you have indicated a program to be used as the default editor, you can access it via the **Edit** button in the *Images* and *Sounds* tabs of the Resource Manager (FIG. 96):

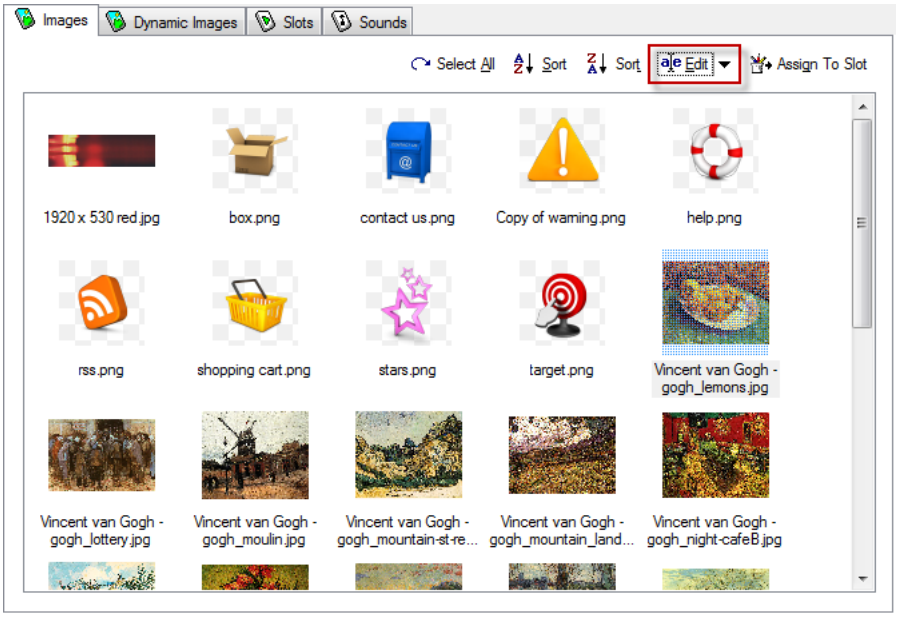


FIG. 96 Resource Manager (Images tab) - Edit button

Adding an External Editing Program for Image or Sound Files

Use the options in the *Editor Selection* tab of the Preferences dialog to associate one or more image/sound editing programs with image files in TPD4 projects. Note that you can associate multiple editor programs, but only one is specified as the default editor:

1. Select **Edit** > **Preferences** to open the *Preferences* dialog, and open the *Editor Selection* tab. Note that **Image Editors** is already selected in the *Editor Type* drop-down menu (FIG. 97).

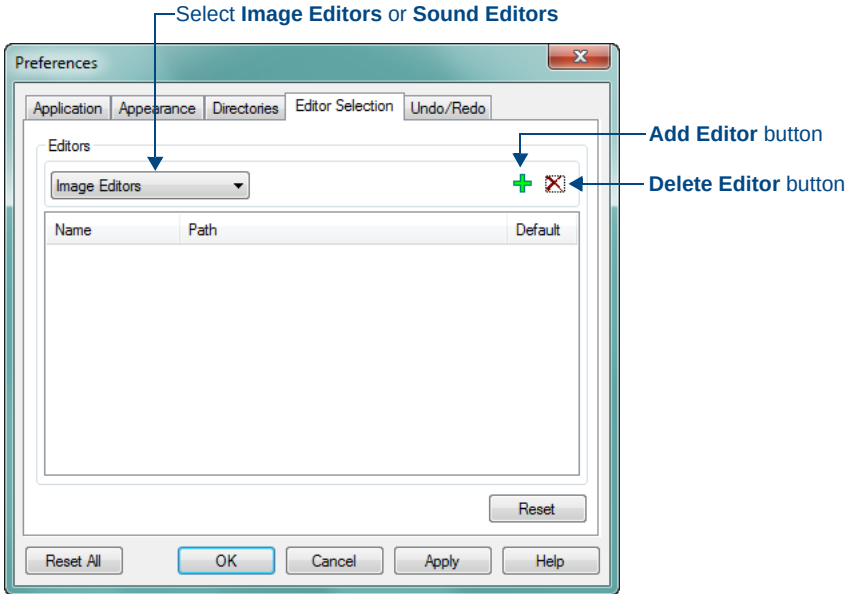


FIG. 97 Preferences dialog (Editor Selection tab)

2. Click the *Add Editor* (+) button to access the *Choose Editor* dialog (FIG. 98).

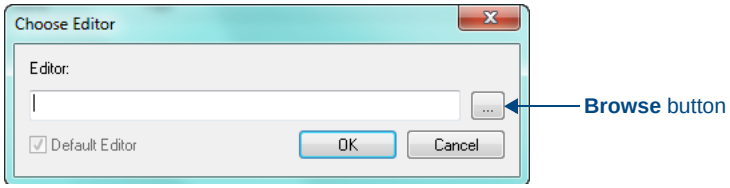


FIG. 98 Choose Editor dialog

3. Click the *Browse* button (**...**) to locate and select the desired program's executable (.EXE) file, in the *Open* dialog.
   - The first program added to the Editors list is automatically designated as the default image editor.
   - If you add additional programs to the list, you have the option (in the *Choose Editor* dialog) to set the default image editor.
4. Click **OK** in the *Choose Editor* dialog to add the selected program to the *Editors* list (FIG. 99).

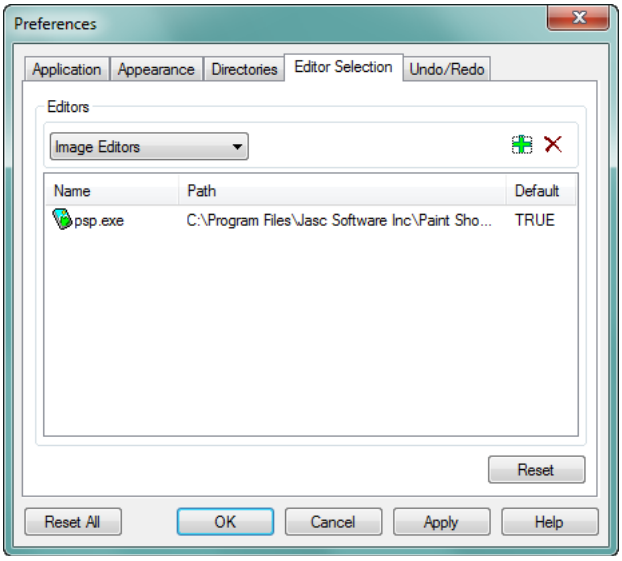


FIG. 99 Choose Editor dialog (Editors list)

The Default column in the Editor Selection tab indicates which program is the current default (TRUE = current default).

Changing the Default External Image or Sound Editor Program

You can change the default image or sound editor program via the *Editor Selection* tab of the Preferences dialog:

1. Select **Edit** > **Preferences** to open the *Preferences* dialog, and open the *Editor Selection* tab.
2. Select the Editor Type that you want to change the default program for (*Image Editors* or *Sound Editors*) from the drop-down menu.
   - This selection populates the *Editors* table with a listing of all editing programs that have been added.
   - The *Default* column indicates which program is the current default (*TRUE = current default*).
3. Double-click on any program in the list (other than the current default) to access the *Choose Editor* dialog.
4. Check the **Default Editor** checkbox to set the selected program as the default editor (FIG. 100).

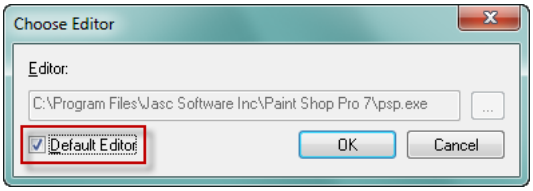


FIG. 100 Choose Editor dialog

5. Click **OK** to close the Choose Editor dialog.
   The new default editor is indicated in the Default column of the *Editors* table (FIG. 101).

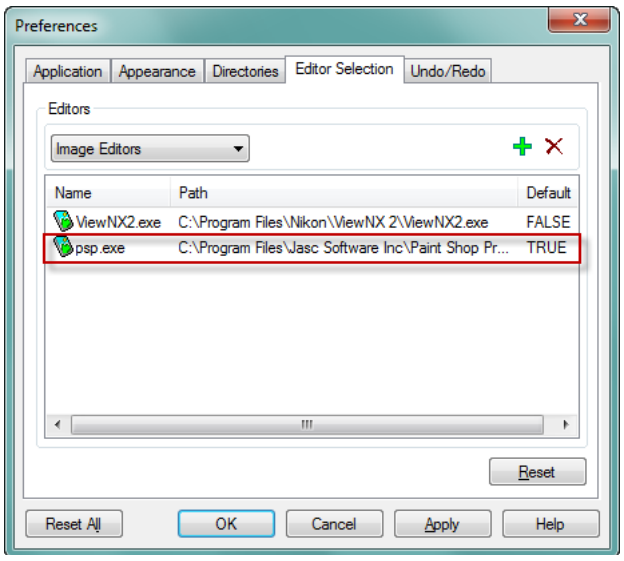


FIG. 101 Editors list

Editing Image Files

1. Open the Images tab of the Resource Manager dialog.
2. Select the image file that you want to edit.
3. Click the **Edit** button to launch the external program specified as the default editor for image files.
4. When the edit session begins, the image or sound file is opened in the default editing program, and control is returned to TPD4. Any saved changes to the resource made in the external editor will be immediately reflected in TPD4.

Editing Sound Files

1. Open the Sounds tab of the Resource Manager dialog.
2. Select the sound file that you want to edit.
3. Click the Edit button to launch the external program specified as the default editor for sound files.
4. When the edit session begins, the image or sound file is opened in the default editing program. Any saved changes to the resource made in the external editor will be immediately reflected in TPDesign4.

NOTE

Any action taken in TPDesign4 that would change the state of the image or sound file being edited (e.g., delete, rename, undo/redo, etc.) will cause the link between TPDesign4 and the external application to be broken. Any subsequent changes made in the external editor will not be reflected nor applied.

Working With Video Fills

If you are designing a project targeted at a video-capable panel, you can assign a "video fill" to a page, popup page or button.

NOTE

The NXP-TPI/4, TPI-PRO and TPI-PRO-DVI accommodate up to 4 video source inputs, and you can select any available video source (1-4) as the source for a video fill.

Streaming Video Fills

If the project specifies a touch panel that supports streaming video (NXD/NXT-1200VG, NXD/NXT-1500VG, and NXD/NXT-1700VG only), *Streaming Source* is available as a video fill option.

The NXP-TPI/4 and TPI-PRO accommodate up to four video source inputs, and you can select any available video source (1-4) as the source for a video fill.

If *Streaming Source* is selected from the drop-down list of **Video Fill** options (in the States tab of the Properties Window), then *Streaming Source* is added to the list of state properties.

Enter the URL or IP Address of the server that will provide the video stream in the Streaming Source field.

Displaying a Video Source on a Page

TPD4 allows you to assign a video source as the background image on a Page, Popup Page or Button.

To apply a video fill to a Page:

1. Select (or a create) a Page in your project.
2. In the Properties window - States Tab, click
3. **Video Fill** to activate the drop-down list of available video sources. The Video Fill options available will depend on the video capabilities of the panel type selected (FIG. 102).

FIG. 102 Video Fill Property drop-down menu

4. Select a video source from the list to apply the video fill to the Page.

Displaying a Video Source on a Popup Page

TPD4 allows you to assign a video source as the background image on a Page, Popup Page or Button.

To apply a video fill to a Popup Page:

1. Select (or a create) a Popup Page in your project.
2. In the Properties window - States Tab, click **Video Fill** to activate the drop-down list of available video sources (*Source 1-4*).
3. Select a video source from the list to apply the video fill to the Popup Page.

Displaying a Video Source on a Button

TPD4 allows you to assign a video source as the background image on a Page, Popup Page or Button.

To apply a video fill to a Button:

1. Select (or a create) a Button in your project.
2. In the Properties window - States Tab, click **Video Fill** to activate the drop-down list of available video sources (*Source 1-4*). Since this is a state-oriented setting, be sure to consider all of the button states when applying the video fill. To apply the video fill across all states, use the All States option in the Properties window (States tab). Alternatively, you can use Ctrl+A to select all states in the State Manager window.
3. Select a video source from the list to apply the video fill to the button.

Working With Pages

Overview

Pages are not only containers for buttons, but can also have up to one address port / address code and up to one channel port / channel code combination (FIG. 103).

FIG. 103 Example Page (with text applied) in Design View window

- Pages cannot have borders and possess only one state.
- You may place text directly on a page outside the context of a button.
- You can select the name for the page, the page background color, the text color for text applied directly to the page, and a font for any text specified (including the font size and settings). If you change any of these properties (except the name) your changes will be saved and future page creations will carry those selections forward.
- Each page must be uniquely named within its respective panel file in order to be accepted by the program; all name collision checks in the program are case insensitive.
- The maximum number of pages in a panel file = 500.

The active project/page is indicated in the Workspace Window by a green wedge to the left of the panel and page icons. Double-click on any page contained in any open project to set it as the active project.

In FIG. 104, "*MXT-1900*" is the active project, and "*Page 2*" is the active page in the project:

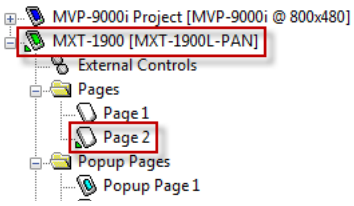


FIG. 104 Workspace Window - Pages

NOTE

Page Flips (which provide the ability to "flip" from one page to another via a button press) are a button-oriented function - see Creating a Page Flip section on page 130 *for details.*

Adding a Page

Use the options in the *Add Page* dialog to define a new Page to add to the active Project (FIG. 105):

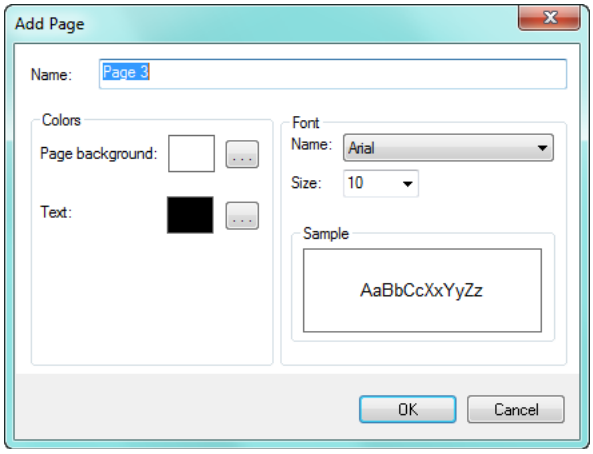


FIG. 105 Add Page dialog

There are several ways to open the *Add Page* dialog:

- Select **Panel > Add Page**
- Click the **Add Page** toolbar button
- Right-click on the Pages folder (or on any individual Page) in the Workspace Window and select **Add Page**.

To add a new Page to your Project:

1. Open the *Add Page* dialog.
2. Fill in the information in this dialog to specify the basic properties for the new Page.
   - **Name**: Enter a name for the new Page here.

     By default, the pages are named Page 2, Page 3, etc.. You can edit the page name at any time directly via the Workspace Window (Pages tab).

     Note the name assigned to the Page appears in the Workspace, but is not displayed in the Page itself. Any text that is to be displayed on the Page is entered via the Text property in the Workspace Window (Pages tab).
   - **Colors**: Set the *Page background* and *Text* colors for the new Page.

     Click on the palette buttons (...) to open the *Colors* dialog, where you can select the desired colors. See the *Working With Colors and Palettes* section on page 309 for details.
   - **Font**: Select a *Font* and *Size* for any text that will be displayed on this Page.

     Note that the actual text is entered via the *Text* property in the Workspace Window (Pages tab). This is also where you can specify the Text Justification as well as apply a Text Effect and Text Effect Color as desired.
3. Click **OK** to add the new Page to the active Project.

The new Page is added to the Workspace Window (Pages tab), under the Project to which the Page was added.

Note that once the page has been created, all Page Properties can be viewed/edited via the Properties window.

Setting Page Properties

Panel Pages have a set of Page Properties that can be configured via the fields in the Properties Window.

To set Page-level properties, click on the Page area in the Design View (as opposed to a button on the page). With the Page selected, the Properties window displays the properties available for the Page, separated into three tabs (*General*, *Programming* and *States*).

Setting General Properties: Pages

Use the General tab of the Properties window to set/edit page properties. The General tab contains a table that lists the page properties for the active page (FIG. 106).

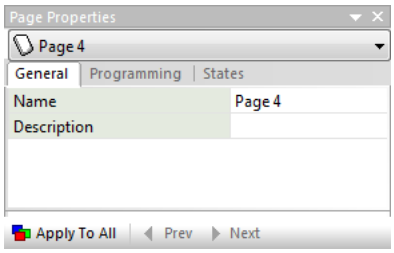


FIG. 106 Properties Window - General tab (with a Page selected)

To edit any of the listed properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following general properties are supported at the page level:

- Name - see page 246
- Description - see page 241

Setting Programming Properties: Pages

Use the Programming tab of the Properties window to set/edit page programming properties. The Programming tab contains a table that lists the programming properties for the active page (FIG. 107).

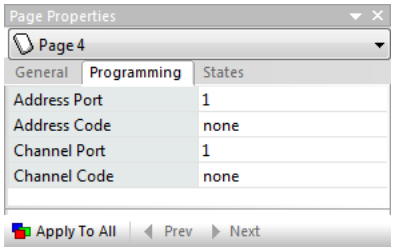


FIG. 107 Properties Window - Programming tab (with a Page selected)

To edit any of the listed properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following programming properties are supported at the page level:

- Address Port - see page 254
- Address Code - see page 254
- Channel Port - see page 254
- Channel Code - see page 254

Setting States Properties: Pages

Use the State tab of the Properties window to set/edit page state properties. The State tab contains a table that lists the page state properties for the active page (FIG. 108).

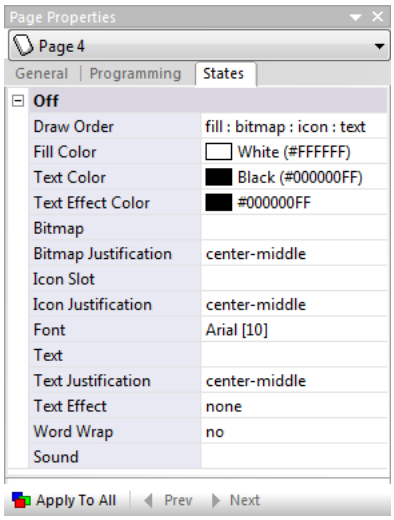


FIG. 108 Properties Window - States tab (with a Page selected)

To edit any of the listed properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following state properties are supported at the page level:

- Draw Order - see page 286
- Fill Color - see page 286
- Text Color - see page 289
- Text Effect Color - see page 290
- Video Fill - see page 291
- Video Touch Pass-Thru - see page 291
- Bitmap - see page 285
- Bitmap Justification - see page 285
- Icon Slot - see page 286
- Icon Justification - see page 286
- Font - see page 286
- Text - see page 289
- Text Justification - see page 290
- Text Effect - see page 290
- Word Wrap - see page 291
- Sound - see page 288

Renaming a Page

To rename any Page in the active project, simply click on a Page entry in the Workspace and type directly into the text field (FIG. 109).

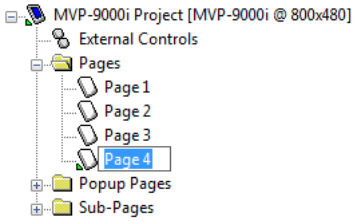


FIG. 109 Renaming a Page (Workspace WIndow)

Opening a Page

Double-click on any page or popup page in the Workspace window (*Pages* tab) to open the selected page in a Design View window.

Adding a Fill Color to a Page

NOTE

The method for adding a fill color to a Page is identical for adding a fill color to a Popup Page or Button.

1. Select the page to which you want to add or change the Fill Color (via the Workspace - *Pages* tab).
2. In the *States* tab of the Properties window, click on the **Fill Color** field to enable the browse (**...**) button (FIG. 110).

FIG. 110 Properties window (States tab) - Fill Color property

3. Click the browse button to open the *Colors* dialog, and select the color that you want to apply to the page (FIG. 111):

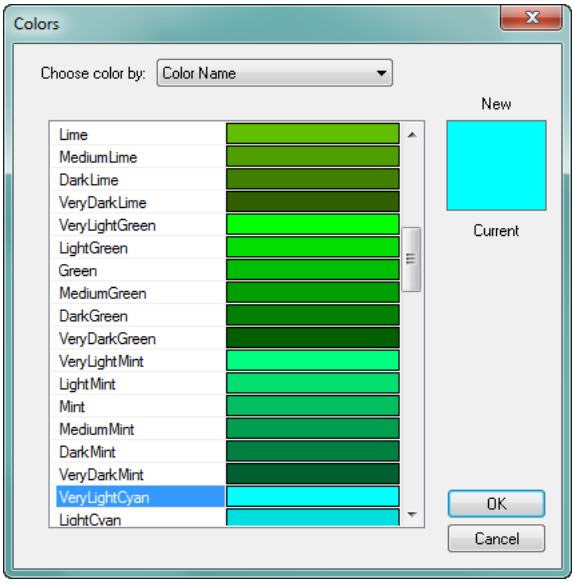


FIG. 111 Colors dialog

4. Click **OK** to close the *Colors* dialog.

NOTE

See the Working With Colors and Palettes section on page 309 *for more information on using the Colors dialog and managing custom palettes.*

Adding a Bitmap to a Page

A bitmap image can be applied directly to a Page in your project, to serve as the background image (see the *State Draw Order* section on page 298).

NOTE

The method for adding a bitmap to a Page is identical for adding a bitmap to a Popup Page or Button.

1. Select the page to which you want to add or change a bitmap image (via the Workspace - *Pages* tab).
2. In the States tab of the Properties window, click on the **Bitmap** field to enable the browse (**...**) button (FIG. 112).

FIG. 112 Properties window (States tab) - Bitmap property

3. Click the browse button to open the *Select Resource* dialog (FIG. 113), where you can select the desired bitmap. Note that only bitmaps that have already been imported into the project (via the *Resource Manager*) are listed in the *Select Resource* dialog.

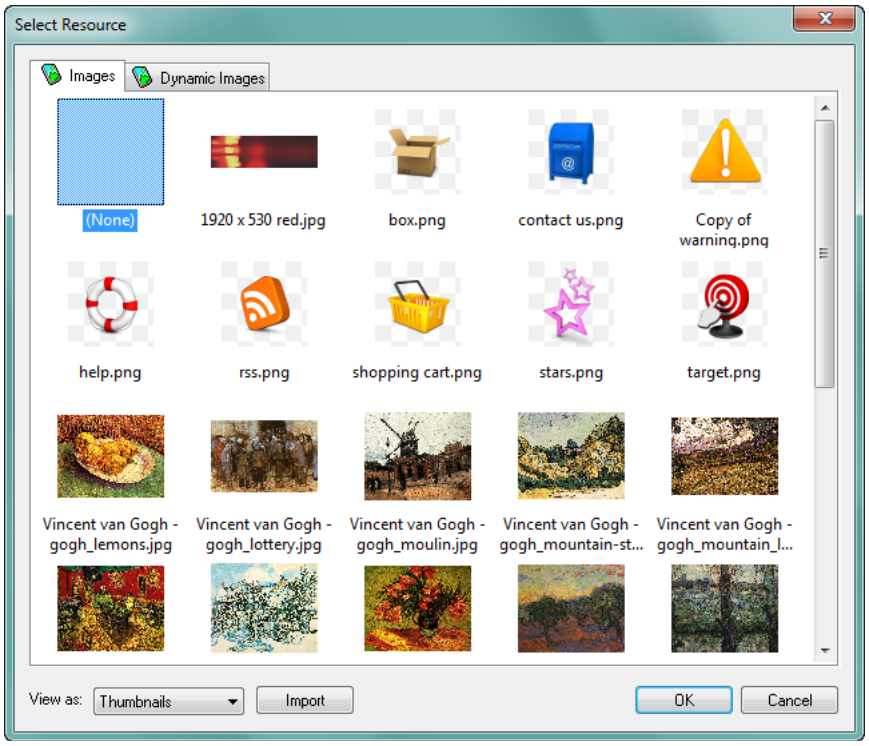


FIG. 113 Select Resource dialog

- Use the **Import** button (at the lower-left of this dialog) to import new bitmaps into the project.
- See the *Resource Manager* section on page 61 for details.

4. Click **Bitmap Justification** (also in the States tab of the Properties window) to set the justification of the image on the page (FIG. 114).

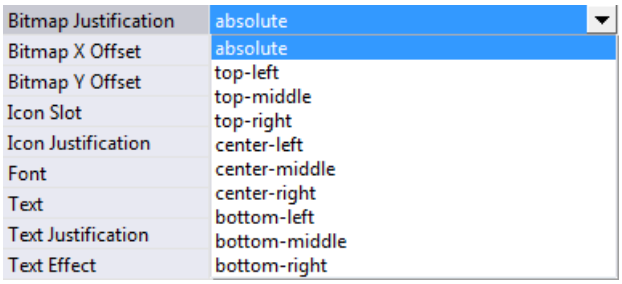


FIG. 114 Properties window (States tab) - Bitmap Justification property

Select *Absolute* to manually position the image. When *Absolute* is selected, the *Bitmap X Offset* and *Bitmap Y Offset* properties are enabled (FIG. 115):

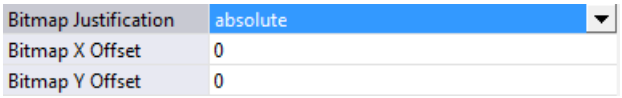


FIG. 115 Properties window (States tab) - Bitmap X Offset and Bitmap Y Offset properties

Use these to specify in pixels the position of the bitmap on the Page. Click on either of these properties to invoke the *Image Offset* dialog, which provides the ability to position the image visually, or manually (FIG. 116):

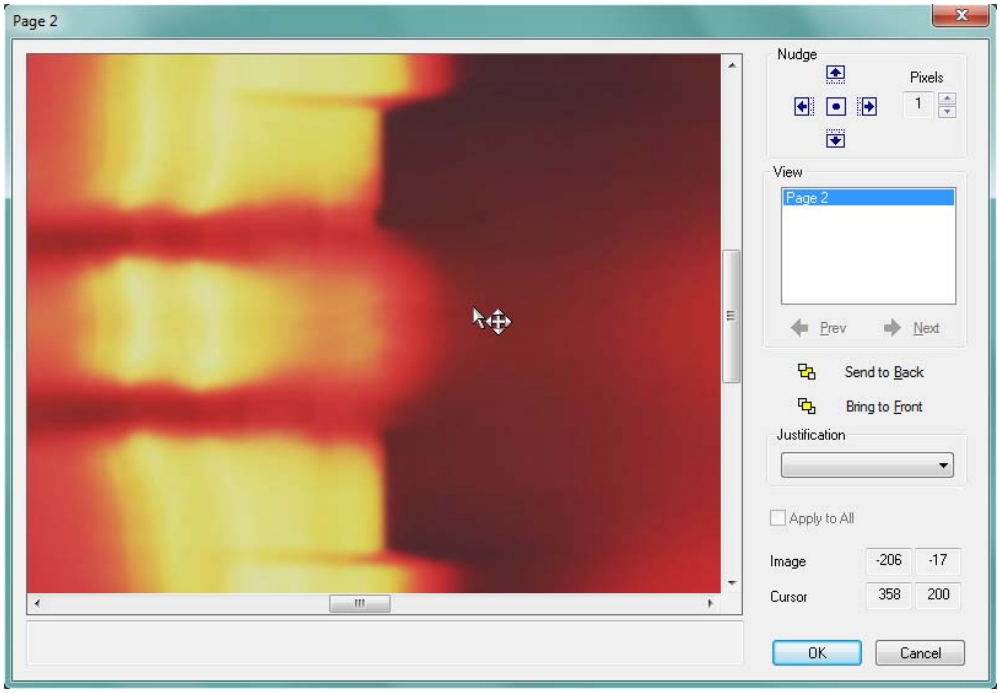


FIG. 116 Image Offset dialog

Alternatively, you can enter the X and Y Offset values directly into the *Properties* window:

- *Bitmap X Offset* specifies a number of pixels from the left edge of the Page and sets the horizontal position of the image.
- *Bitmap Y Offset* specifies a number of pixels from the top edge of the Page and sets the vertical position of the image.

5. Click **OK** to close the *Select Resource* dialog.

NOTE

TPD4 does not automatically scale or stretch images to fit the Page. To scale an image to fit a target Page, Popup or Button, open the image in any graphics editor program, and scale the image to the exact size (in pixels) of the Page. To check the size of Pages, Popups or Buttons in your project, check the Width and Height values in the Properties window (General tab). Match the image size (in pixels) to the size indicated there.

Displaying a Video Fill on a Page

TPDesign4 allows you to assign a video source as the background image on a Page, Popup Page or Button via the Video Fill (State) property.

To apply a video fill to a Page:

NOTE

The method for adding a Video Fill to a Page is identical for adding a Video Fill to a Popup Page or Button.

1. Select the page on which you want to display a video fill (via the Workspace - *Pages* tab).
2. In the Properties window (*States* tab), click **Video Fill** to activate the drop-down list of available video sources (FIG. 117).

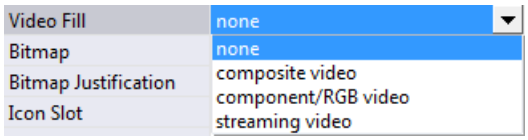


FIG. 117 Properties window (States tab) - Video Fill property

- The *Video Fill* property is only available if the target panel for the active Project supports video.
- The *Video Fill* options available will depend on the video capabilities of the panel type selected

3. Select a video source from the list to apply the video fill to the Page.

When a Video Fill has been applied to a Page, the video fill is represented in the Design View as shown in FIG. 118:

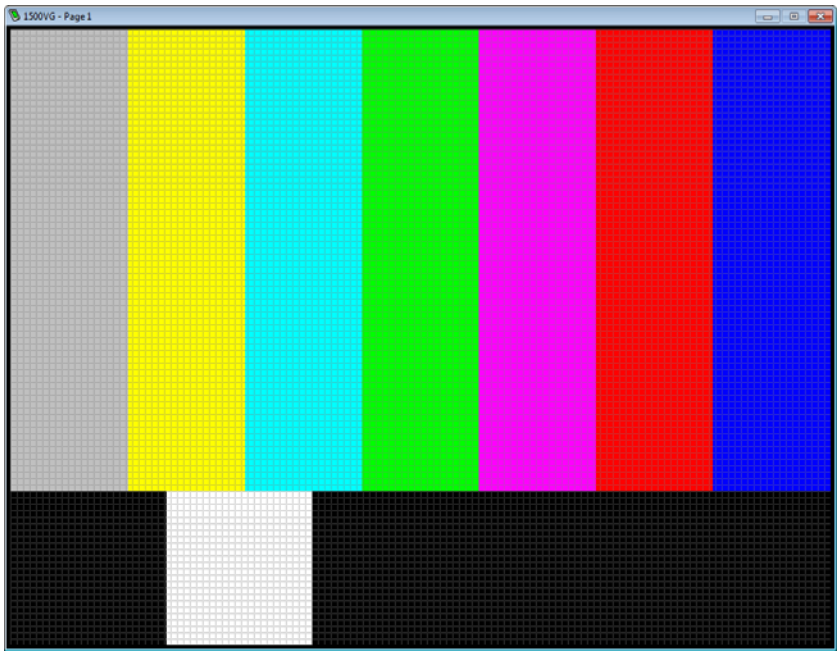


FIG. 118 Video Fill applied to a Page

Adding an Icon to a Page

You can apply an image Icon directly to a Page in your project, to serve as the foreground image (see the *State Draw Order* section on page 298).

NOTE

In order to apply Bitmaps and/or Icons to Pages, Popup Pages or Buttons, the image files must be pre-loaded in the Resource Manager. See the Resource Manager section on page 61*for details.*

1. Select the page to which you want to add or change an image icon (via the Workspace - *Pages* tab).
2. In the *States* tab of the Properties window, click on the **Icon Slot** field to enable the browse (**...**) button (FIG. 119).

FIG. 119 Properties window (States tab) - Icon Slot property

3. Click the browse button to open the *Select Resource* dialog, where you can select the desired icon.
   - Icons are managed via the *Slots* tab of the *Resource Manager*.
   - If you don't see the desired image icon file listed in the *Select Resource* dialog, you need to import the image file into the project and assign it to a slot position.
   - See the *Assigning Images To Slot Positions* section on page 69 for details.
4. Click **Icon Justification** (also in the *States* tab of the Properties window) to set the justification of the image icon on the page (FIG. 120).

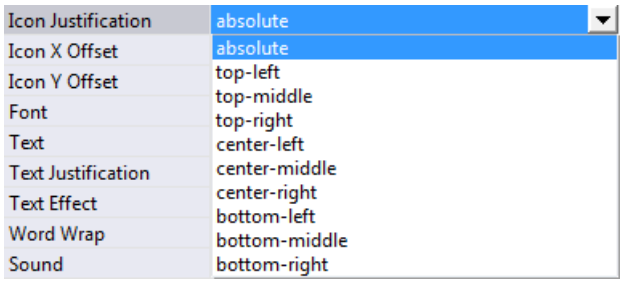


FIG. 120 Properties window (States tab) - Icon Justification property

Select *Absolute* to manually position the icon. When *Absolute* is selected, the *Icon X Offset* and *Icon Y Offset* properties are enabled (FIG. 121):

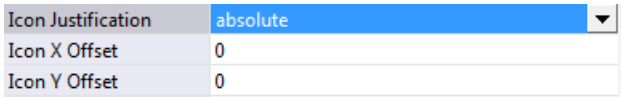


FIG. 121 Properties window (States tab) - Icon X Offset and Icon Y Offset properties

Use these to specify in pixels the position of the bitmap on the Page. Click on either of these properties to invoke the *Image Offset* dialog, which provides the ability to position the image visually, or manually (see FIG. 116 on page 97).

Alternatively, you can enter the X and Y Offset values directly into the *Properties* window:

- *Bitmap X Offset* specifies a number of pixels from the left edge of the Page and sets the horizontal position of the image.
- *Bitmap Y Offset* specifies a number of pixels from the top edge of the Page and sets the vertical position of the image.

5. Click **OK** to close the *Select Resource* dialog.

Adding Text to a Page

Since G4 panels utilize address and channel port/address codes (and possess a single state), you can display text directly on a Page in your project.

- The method for adding Text to a Page is identical for adding Text to a Popup Page or Button.
- According to the default State Draw Order, Text is drawn in top of all other fill properties. See the *State Draw Order* section on page 298 for details.

1. Select the page to which you want to add or change a text (via the Workspace - *Pages* tab).
2. In the *States* tab of the Properties window, click on the **Text** field to enable the browse (**...**) button (FIG. 122).

FIG. 122 Properties window (States tab) - Text property

Click the browse button to open the *Enter Text* dialog (FIG. 123), and type the page text as desired (up to 4096 characters). Alternatively, you can type directly into the *Text* field.

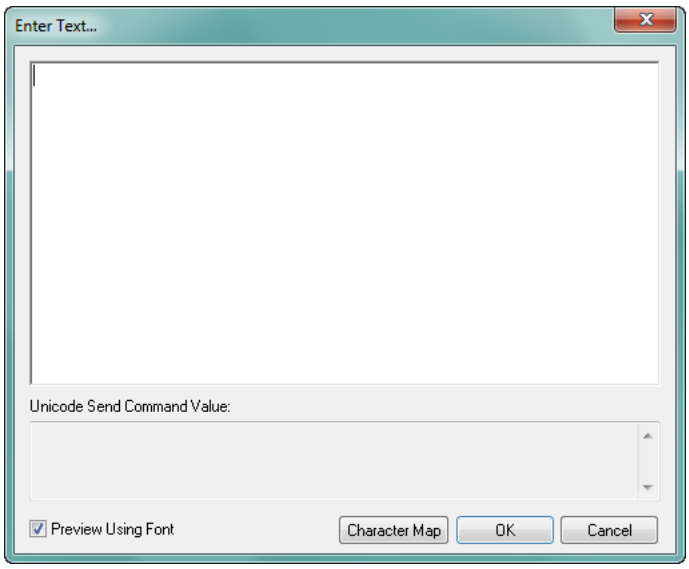


FIG. 123 Enter Text dialog

- In fact, the *Enter Text* dialog is only necessary for entering multiple lines of text.
- Also use the *Enter Text* dialog to edit existing page text, if any exists.

3. Select **Text Color** in the *States* tab of the Properties window to enable the browse button (FIG. 124**)**.

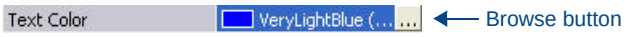


FIG. 124 Properties window (States tab) - Text Color property

Click the browse button to open the *Colors* dialog where you can select a color for the Page text (FIG. 125):

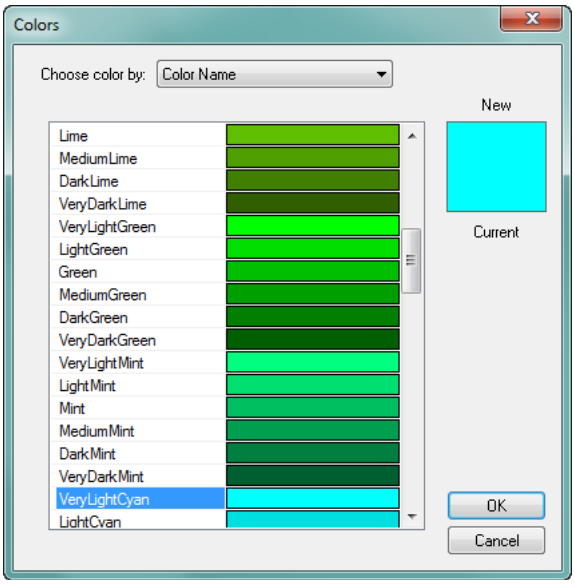


FIG. 125 Colors dialog

4. Click on **Font** in the States tab of the Properties window to enable the browse button (FIG. 126).

FIG. 126 Properties window (States tab) - Font property

Select the desired font in the *Choose Font* dialog (FIG. 127):

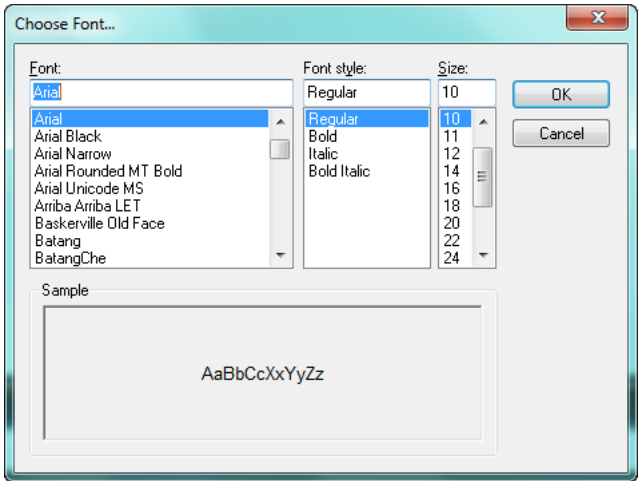


FIG. 127 Choose Font dialog

5. Click **Text Justification** in the *States* tab of the Properties window to set the justification of the text on the page (FIG. 128).

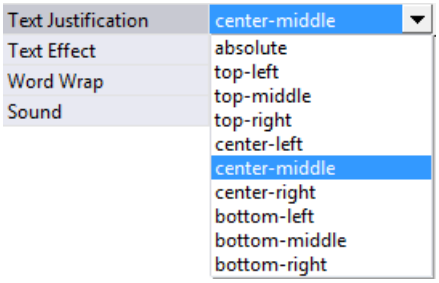


FIG. 128 State Property - Text Justification

Select *Absolute* to manually position the text. When *Absolute* is selected, the **Bitmap X Offset** and **Bitmap Y Offset** Properties are enabled. Use these to specify in pixels the position of the text on the Page. Click the Browse (...) button on either of these properties to invoke a dialog that allows you to position the text visually, or manually (FIG. 129).

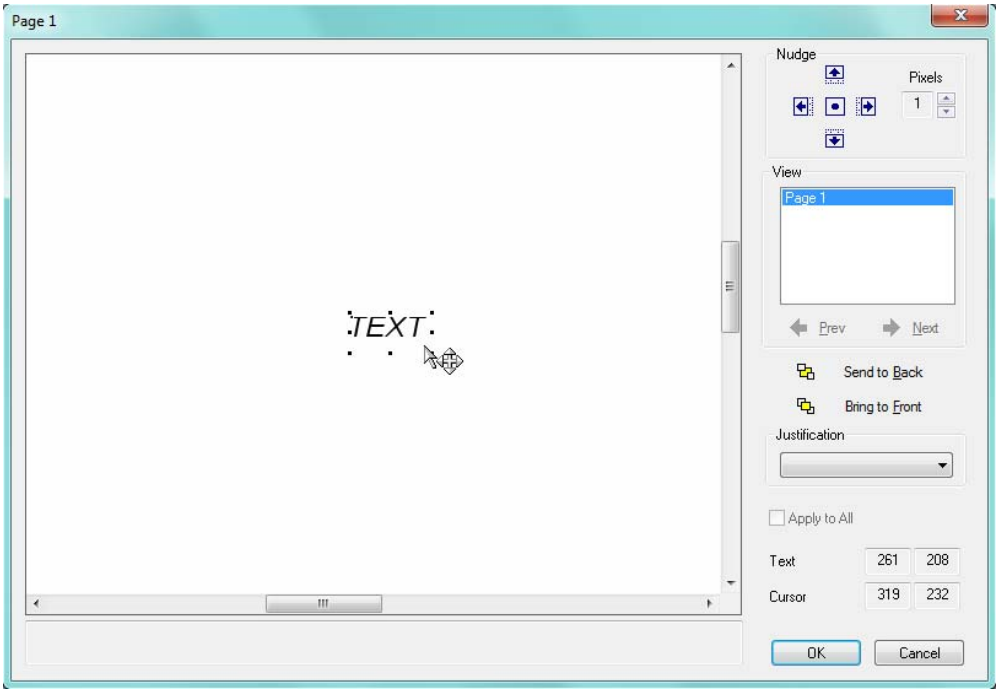


FIG. 129 Text Position dialog

Alternatively, you can enter the X and Y Offset values directly into the Properties window:

- *Text X Offset* specifies a number of pixels from the left edge of the Page and sets the horizontal position of the text.
- *Text Y Offset* specifies a number of pixels from the top edge of the Page and sets the vertical position of the text.

6. Click **Text Effect** to enable a drop-down menu of Text Effect options (FIG. 130):

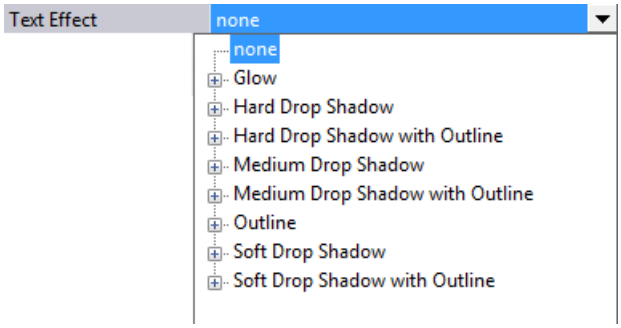


FIG. 130 Text Effect options

a. Select a Text Effect to apply to the text. Note that if a *Text Effect* is selected, the **Text Effect Color** property is enabled (FIG. 131):

FIG. 131 Properties window (States tab) - Text Effect Color property

b. Click the browse button to open the *Colors* dialog and select a color for the Text Effect.

See the *Text Effects* section on page 381 for details.

7. Click **Word Wrap**, and select wether to wrap text that doesn't fit on a single line on the selected Page (FIG. 132).

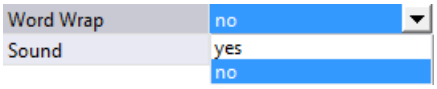


FIG. 132 State Property - Word Wrap

If you select **No**, any text that won't fit on the selected Page may not be visible, depending on the text justification setting and the size of the Page.

True Type Font Support

Since G4 panels have the ability to decode and display Windows True Type Font files (TTF), TPD4 directly utilizes TTF files.

- Fonts are presented in the Properties window (*States* tab), as well as the Button Selection/Draw toolbar and the *Add Page* and *Add Popup Page* dialogs.
- The TTF files listed represent those TTF files installed in Windows with their available point sizes.

Foreign Language Support for Text

For page and button state text properties, TPD4 supports non-complex scripts (those that can be printed correctly without the use of a rendered script) to the extent that the True Type font currently selected for that state supports the language in question.

NOTE

The size of the font required to support the language (particularly in the case of East Asian languages that utilize ideograms) might be prohibitive due to limits of available memory on the target device. If the size of the font exceeds the memory available on the device, the panel designer may be forced to use a pre-rendered graphic to display the desired text.

TPD4 and G4 firmware do not provide explicit support for languages that utilize complex scripts. These languages include (but are not limited to) Arabic, Hebrew, and Devangari.

In order to display such languages on a page or button state, the panel designer must create a pre-rendered graphic of the desired text (using a suitable graphics application) that can then be imported into the TPD4 panel project as a graphic (icon or bitmap).

Once imported into the panel project, the graphic can be assigned to one or more page or button states.

Copying/Pasting Pages

Copying Pages

In the Workspace Navigator (Pages tab), at the top most level are Panel Names. Immediately below the panel names is a *Pages* folder (containing Pages), and a *Popup Pages* folder (containing Popup pages).

You can copy a page either by selecting a Page *only* (ensuring that no buttons are selected) in an active Design View window, or by single-clicking on a page in the Workspace Navigator (Pages tab) then clicking **Edit > Copy** from the main menu (or the **Copy** button in the main toolbar).

Pasting Pages

You may paste (by either clicking **Edit > Paste** from the main menu or the **Paste** button in the main toolbar) a previously copied page onto:

1. An active Design View window
2. The panel name in the Workspace Navigator
3. The folder named *Pages*

NOTE

Pasting a Page onto the Popup Pages folder (which is for popup pages only) is not allowed.

Renaming a Page

To rename any Page in the active Project, simply click on a Page entry in the Workspace and type directly into the text field (FIG. 133):

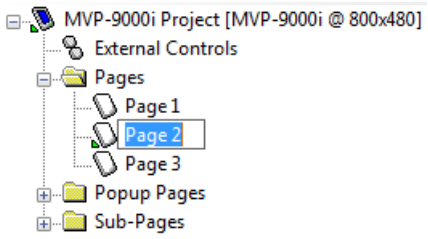


FIG. 133 Renaming a Page

Deleting a Page From the Project

To delete a page from the active project, select the page to delete in the Workspace window - *Pages* tab, and select **Edit > Delete**.

The program will prompt you to verify the page deletion first (FIG. 134):

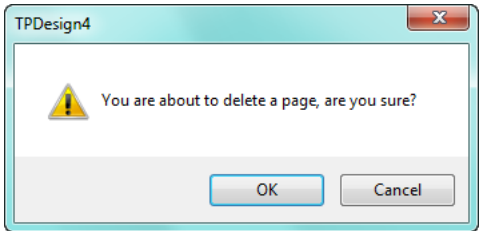


FIG. 134 Confirm deleting a Page from the Project

NOTE

All panels must include at least one page, therefore, deleting the last remaining page is not allowed.

Exporting Pages as Image Files

Use the options in the *Export Page Images* dialog to export one or more Pages (and/or Popup Pages) in the current Project as image files:

1. Select **Panel > Export Page Images** to open the *Export Page Images* dialog (FIG. 135).

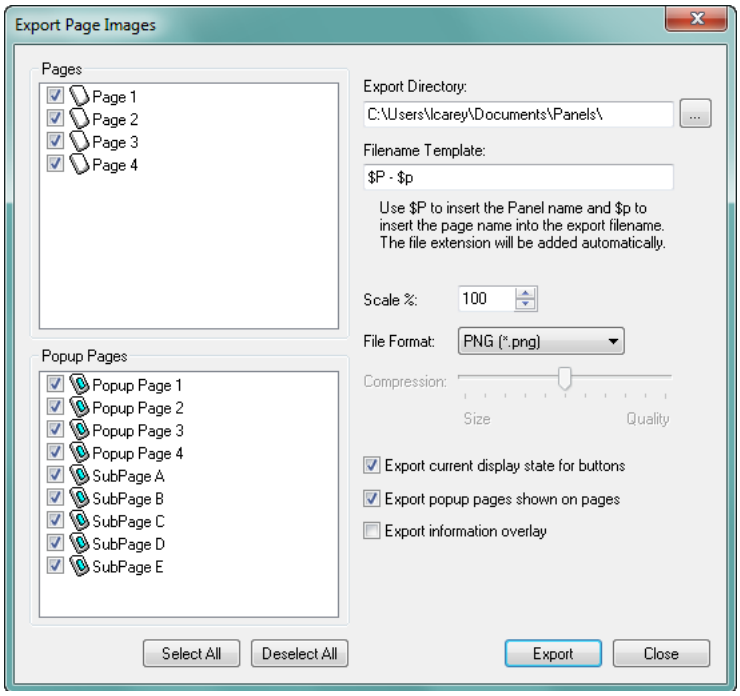


FIG. 135 Export Page Images dialog

2. Use the checkboxes in the *Pages* and *Popups* lists to select which Pages and Popup Pages to export.
3. Specify a target directory for the exported image files in the *Export Directory* field. Use the browse button (...) to navigate to a target directory via the *Browse For Folder* dialog.
4. Specify a template for the resulting filenames in the *Filename Template* field. By default, the template is set to include the Panel file name and the Page name into the generated image's file name.

   As described on the dialog, use **$P** to insert the Panel name and $p to insert the Page name into the exported file's name. The file extension is automatically, based on the *File Format* selection.
5. Use the *Scale%* up and down arrows indicate a percentage to down-scale the exported images. The default setting is 100% (no scaling).
6. Select a image file type (JPG, PNG or BMP) for the resulting image files from the File Format drop-down. If JPG is selected, you can select the desired level of image compression
7. Select **Export current display state for buttons** to capture the Pages as they are currently displayed in the Design View, with the button's current display state.

   If this option is not selected, it will export the buttons in the (default) Off state. By default, this option is enabled.
8. Select **Export popup pages shown on pages** to include any Popup Pages that are being displayed on the Design View at the time of selection in the exported Page image file.

   If this option is not selected, only the Page underneath any currently viewed Popup Pages will be exported. By default, this option is enabled.
9. Select **Export information overlay** to include any function code information this is currently being displayed on the Design View at the time of selection in the exported Page image file.

   If this option is not selected, only the Page underneath any currently displayed function codes will be exported. By default, this option is disabled.
10. Click **Export**.

Printing Pages

Select **File > Print Preview** to display a preview of the pages and popup pages in the active project, as they will appear when printed in the *Print Preview* window (FIG. 136).

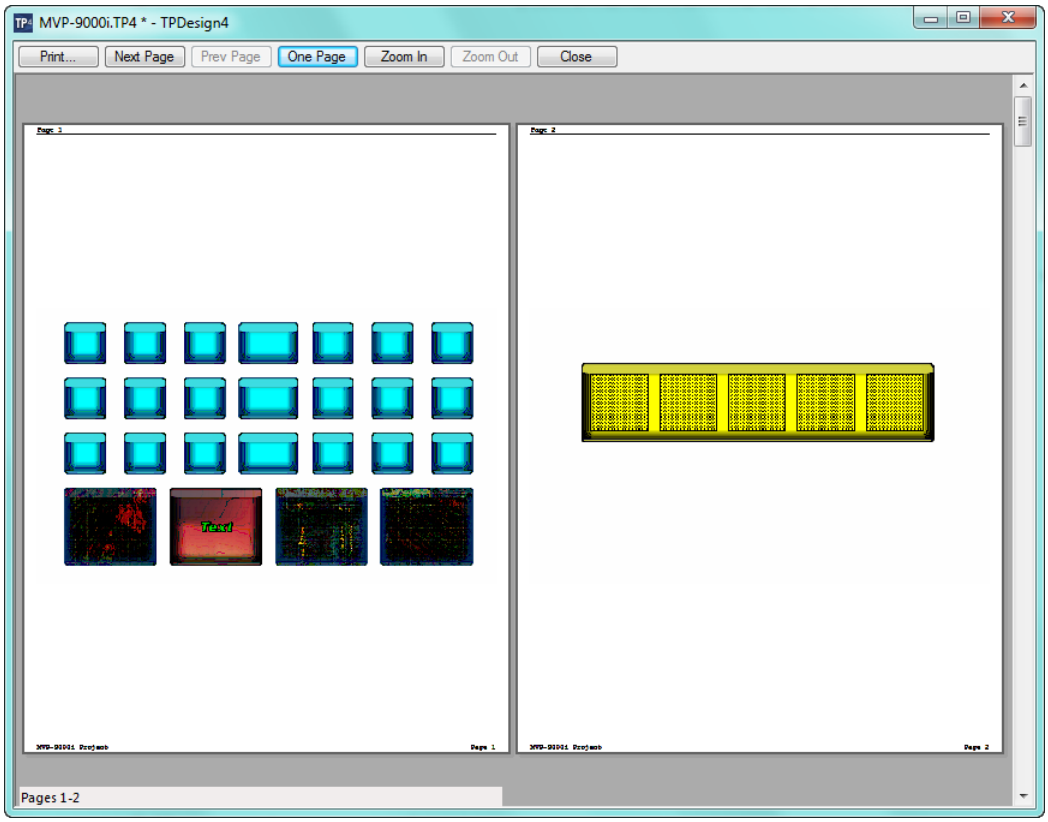


FIG. 136 Print Preview window

Each page and popup page in the project is printed one per page. See the *Print Preview Window* section on page 33 for details.

If you don't have a printer installed on your PC, the **File > Print** and **File > Print Preview** options invoke a message alerting you to install a printer.

Popup Pages

Overview

Generally, Popup Pages provide a mode of sub-navigation for the panel's UI by presenting a set of options that sit on top of a main Page. Popup Pages are similar to Pages in some respects as they are a container for Buttons, they may have up to one address and channel port code assignments, and contain only one state. Otherwise, Popup Pages have many typically Button specific properties, as well as some special properties that apply only to Popup Pages. For example, Popup pages (unlike Pages) can be assigned a border style and border color, as well as left, top, width or height values.

As of TPDesign4 v3.2, Popup Pages are sub-divided into two types: **Standard Popups** and **Sub-Page Popups**.

Standard Popups

Standard Popups are the basic Popup Page that has always been supported in TPD4. FIG. 137 shows an example of a Standard Popup Page that provides navigation to a set of display options, on top of a main Page:

FIG. 137 Example Standard Popup Page in Design View window

Standard Popups are represented in the Workspace Window (*Pages* tab) within the **Popup Pages** folder (FIG. 138):

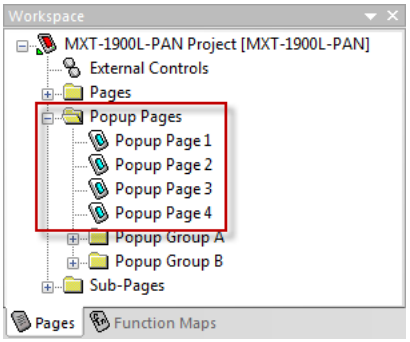


FIG. 138 Workspace Window (Pages tab) - Popup Pages folder

Standard Popup Pages can be organized in to *Popup Page Groups*. Popup Page Groups provide a mechanism to group Standard Popup Pages into mutually exclusive groups for display purposes (see the *Popup Page Groups* section on page 113).

See:

- *Creating a Standard Popup Page* on page 108
- *Setting Standard Popup Page Properties* on page 110
- *Popup Page Groups* on page 113

Sub-Page Popups (Sub-Pages)

Sub-Page Popups (usually simply referred to as *Sub-Pages*) are a special type of popup page used to create *Scrolling Regions* (TPD4 v3.2 or higher, supported only by Modero X Series Touch Panels). Sub-Pages represent the scrolling elements that are displayed within the Scrolling Region (FIG. 139):

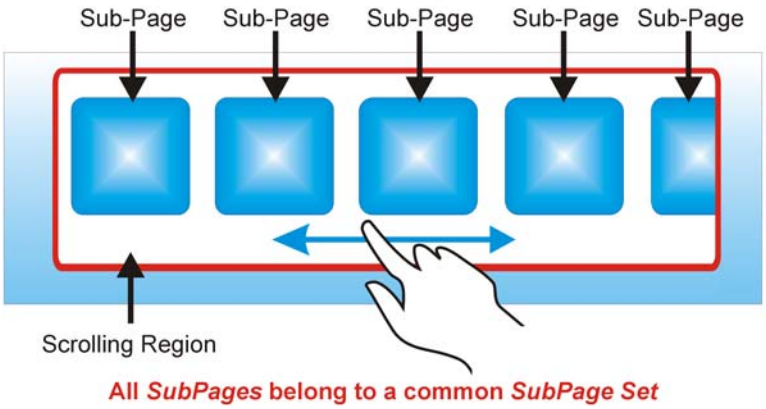


FIG. 139 Standard Popup Page Example

- Scrolling Regions require **Sub-Pages**, **Sub-Page View Buttons**, and **Sub-Page Sets**. *see the Scrolling Regions* section on page 173 *for details.*
- See the *Sub-Pages* section on page 119 for details on Sub-Pages.

Creating a Standard Popup Page

There are two ways to add a new Standard Popup Page to your Project:

Via the Add Popup Page Dialog

1. Select **Panel > Add Popup Page** (or select *Add Popup Page* from the Workspace Context Menu, or click the toolbar icon) to open the *Add Popup Page* dialog (FIG. 140).

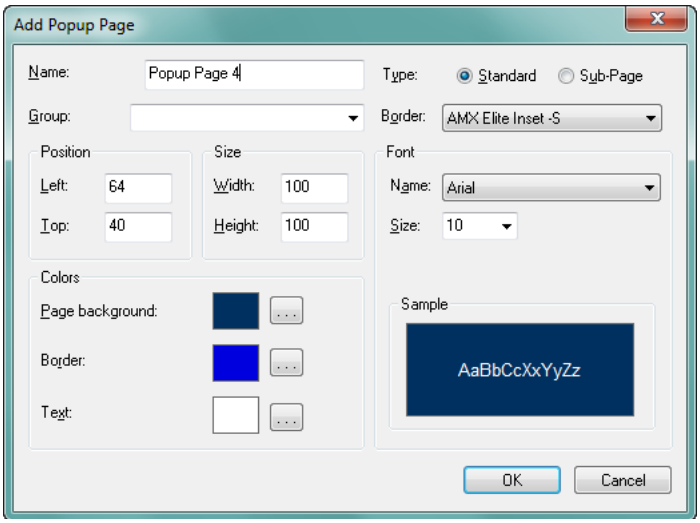


FIG. 140 Add Popup Page dialog

By default, the *Type* property is set to **Standard**. This indicates that the new Popup Page will be a Standard Popup, as opposed to a Sub-Page Popup.

2. Fill in the information in this dialog to specify the basic properties for the new Popup Page.

- There are some specifics to understand regarding naming Popup Pages (see the *Naming Popup Pages* section on page 115 for details).
- The minimum size for popup pages is 15 pixels in height or width.

3. Click **OK** to add the new Popup Page to the active project. The new popup page will be appear in the Workspace window (Pages folder), under the project to which the page was added (as the active page - see "*Popup Page 4*" below):

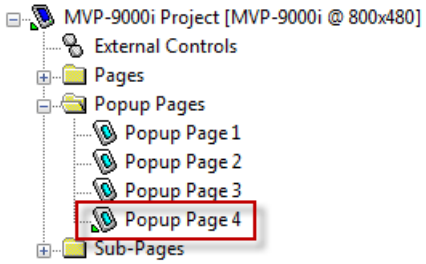


FIG. 141 Workspace window (Pages tab) - Popup Pages folder

4. Set the Popup Page Properties as desired. See the *Setting Standard Popup Page Properties* section on page 110 for details.

Using the Popup Draw Tool

1. Select **Edit > Popup Draw Tool** (or click the toolbar button) to activate the Popup Draw tool.

   To access the Popup Draw toolbar button, click and hold the Button Draw tool (in the Selection/Drawing Tools toolbar) for one second to open the drop-down menu containing the Popup Draw tool (FIG. 142):

FIG. 142 Selection/Drawing Tools Toolbar - Popup Draw tool

2. Left-click inside the desired page (in the active Design View window), and while holding the left mouse button down, drag to draw the popup page to the desired size and shape (FIG. 143).

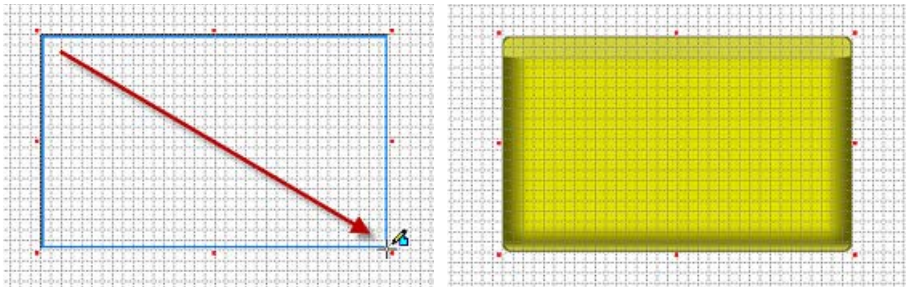


FIG. 143 Drawing a Popup Page

- The minimum popup page size is 15 pixels in height or width.
- When using the Button Draw or Popup Draw tools, hold down the SHIFT key while drawing to constrain the item to a square.
- When using the Selection tool, hold down the ALT key while clicking and dragging in a Design View window to move the current selections without selecting anything new on the mouse press (useful for moving popup pages whose entire area is filled with buttons).
- When using the Selection tool, hold down the CTRL key while clicking and dragging to force a "lasso" selection to occur (even if the mouse was clicked over a button or Popup Page shown on the Page). Lasso selection forces you to draw a square around the outside of the item to select it, as opposed to clicking on the item.
- With an item selected in a Design View window, hold down the CTRL key while moving the item with the keyboard arrow keys to move by the grid size instead of a single pixel (regardless of the

grid visibility or snap to grid setting). Holding the CTRL key while resizing the selected items with the keyboard will resize by the grid size.

3. In the Properties window (*General* tab), verify that the *PopupType* property is set to **Standard** (FIG. 144):

FIG. 144 PopupType property - Standard

4. Set the other properties as desired - see the *Setting Standard Popup Page Properties* section on page 110 for details.

There are some specifics to understand regarding naming Popup Pages (see the Naming Popup Pages section on page 115 *for details).*

5. Select **File > Save** to save your changes.

Drawing Assist Support for Popup Pages

Once a popup page is displayed on a main Page in the Design View, you can utilize several of the Drawing Assist tools (available via the Position and Size Assist toolbars and the Layout menu) to edit the size and position of the popup page.

With only the popup page selected, you can use the *Center Horizontal* and *Center Vertical*, the *Size to Image* tool (if an image has been placed on the popup page), all five *Border* tools (if a border has been applied to the popup page), as well as apply any of the options from the *Aspect Ratio* tool.

FIG. 145 Position and Size Assist toolbars

With the selection of one or more buttons on the page in conjunction with a popup page selection, all of the existing Drawing Assist tools are available to allow you to size and align their popup page(s) with existing buttons on the page.

Setting Standard Popup Page Properties

Standard Popup Pages have *Standard*, *Programming* and *States* Properties that can be configured in the *Properties* window. To set Standard Popup Page properties, click on the Popup Page in the Design View, or select a Popup Page in the Workspace window (Pages tab). With the Popup Page selected, the Properties window displays the properties available for the Popup, separated into three tabs (*General*, *Programming* and *States*).

To edit any of the listed properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

Setting General Properties: Popup Pages

Use the *General* tab to set/edit Popup Page properties (FIG. 146):

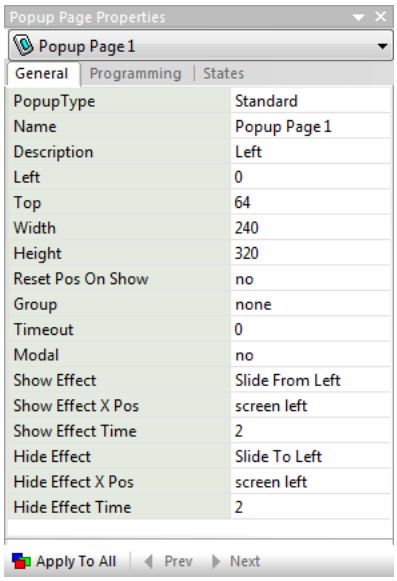


FIG. 146 Properties Window - General Tab (Standard Popup Page)

The following *General* properties are supported for Standard Popup Pages:

Standard Popup Pages - General Properties	
Property Name	Page Reference
Popup Type	page 247
Name	page 246. Also see the *Naming Popup Pages* section on page 115.
Description	page 241
Left	page 243
Top	page 250
Width	page 251
Height	page 242
Reset Pos On Show	page 248
Group	page 242
Timeout	page 250
Modal	page 246
Show Effect	page 249
Show Effect X/Y Pos	page 249
Show Effect Time	page 249
Hide Effect	page 242
Hide Effect X/Y Pos	page 242
Hide Effect Time	page 242

Setting Programming Properties: Popup Pages

Use the *Programming* tab to set/edit Popup Page properties. The Programming tab contains a table that lists program-related properties (Address assignments) for the active Popup (FIG. 147).

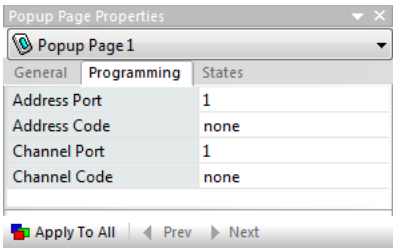


FIG. 147 Properties Window - Programming Tab (Standard Popup Page)

The following *Programming* properties are supported for Standard Popup Pages:

Standard Popup Pages - Programming Properties	
Property Name	Page Reference
Address Port	page 254
Address Code	page 254
Channel Port	page 254
Channel Code	page 254

Setting States Properties: Popup Pages

Use the *States* tab to set/edit Popup Page State properties (FIG. 148):

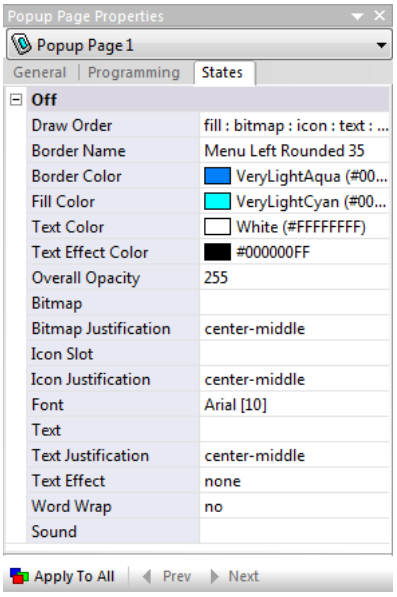


FIG. 148 Properties Window - States Tab (Standard Popup Page)

Note that Popups have only one State (*Off*).

The following *State* properties are supported for Standard Popup Pages:

Standard Popup Pages - State Properties	
Property Name	Page Reference
Draw Order	page 286. Also see the *State Draw Order* section on page 298.
Border Name	page 285.
Border Color	page 285

Standard Popup Pages - State Properties (Cont.)	
Property Name	Page Reference
Fill Color	page 286
Text Color	page 289
Text Effect Color	page 290
Overall Opacity	page 287
Video Fill	page 291. Also see the XXXXX.
Streaming Source	page 288
Bitmap	page 285
Bitmap Justification	page 285
Bitmap X Offset	page 285
Bitmap Y Offset	page 285
Icon Slot	page 286. Also see the *Icons* section on page 83.
Icon Justification	page 286
Icon X Offset	page 286
Icon Y Offset	page 287
Font	page 286
Text	page 289
Text Justification	page 290
Text X Offset	page 290
Text Y Offset	page 290
Text Effect	page 290
Word Wrap	page 291
Sound	page 288

Popup Page Groups

Standard Popup Pages can be organized in to Popup Page Groups. Popup Page Groups provide a mechanism to group popup pages into mutually exclusive groups for display purposes.

Popup Page Groups are represented in the Workspace Navigator (*Pages* tab) in a **Popup Page Group** folder, nested within the Popup Pages folder for each Project that includes Popup Page Groups (see *Popup Group 1* in the example below).

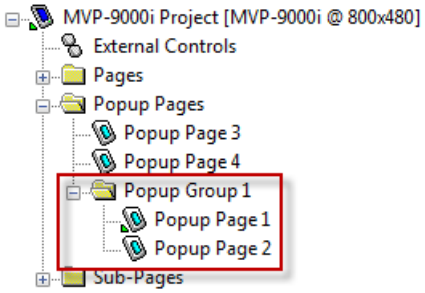


FIG. 149 Workspace Window - Example Popup Page Groups folder

Creating Popup Page Groups

Popup Page Groups provide a mechanism to group Standard Popup Pages into mutually exclusive groups for display purposes.

There are two ways to create a new Popup Page Group:

- Via the Add Popup Page dialog
- Via the Properties Window

Via the Add Popup Page dialog

To create a new Popup Page Group via the *Add Popup Page* dialog, as part of creating a new Popup Page:

1. Select **Panel > Add Popup Page** to open the *Add Popup Page* dialog (see FIG. 140 on page 108).
2. Enter a name for the new Popup Page Group in the *Group* text field (FIG. 150).

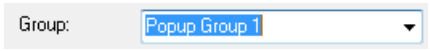


FIG. 150 Add Popup Page dialog - Group field

Note that if any Popup Page Groups have been defined previously, they are available for selection via the Group drop-down menu.

3. Fill in the remaining information in this dialog to specify the basic properties for the new Popup Page (see the *Creating a Standard Popup Page* section on page 108 for details).
4. Click **OK** to add the new Popup Page and Popup Page Group to the active project.

Via the Properties Window

To create a new Popup Page Group via the *Group* Property, for an existing Popup Page:

1. Select a Popup Page in the Workspace window (*Pages* tab) to open the popup page and populate the Properties window.
2. In the **Group** property, type a name for the new Popup Page Group (Example - "*Popup Group 1*").

FIG. 151 Properties Window (General tab) - Group property

3. Press *Enter* to add the new Popup Page Group to the active project.

   The new Popup Page Group will be appear in the Workspace Navigator (Pages tab) within the Popup Pages folder, under the project to which the page was added (as the active page - see Popup Group 1 in FIG. 152):

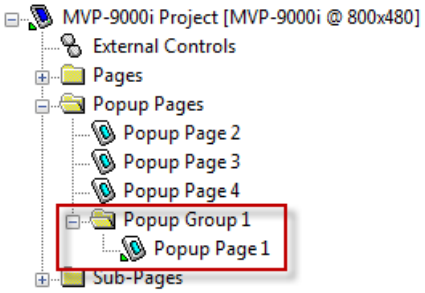


FIG. 152 Workspace Navigator (Pages tab) - Popup Page Group folder

Adding Popup Pages To a Popup Page Group

There are two ways to add Standard Popup Pages to a Popup Page Group:

1. Drag-and-drop popup page(s) from the Popup Pages folder into the desired group folder (FIG. 153):

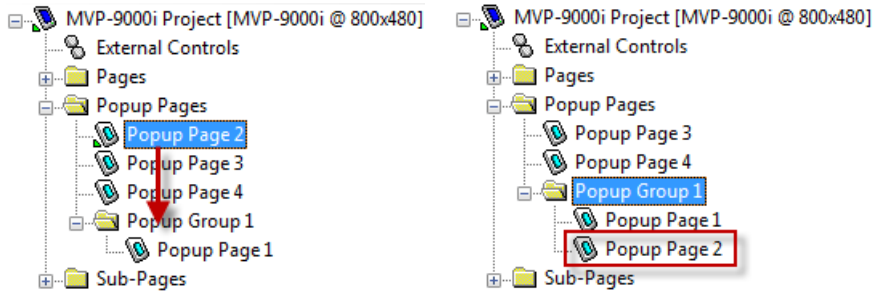


FIG. 153 Drag-and-Drop Popup Pages Into Popup Page Group folder

2. Set the group association via the **Group** property in the Properties window - *General* tab (FIG. 154):

FIG. 154 Properties Window (General tab) - Group Property

Removing Popup Pages From a Popup Page Group

There are two ways to remove Standard Popup Pages from a Popup Page Group:

1. Drag-and-drop popup page(s) from the Popup Page Group folder into the Popup Pages folder (FIG. 155):

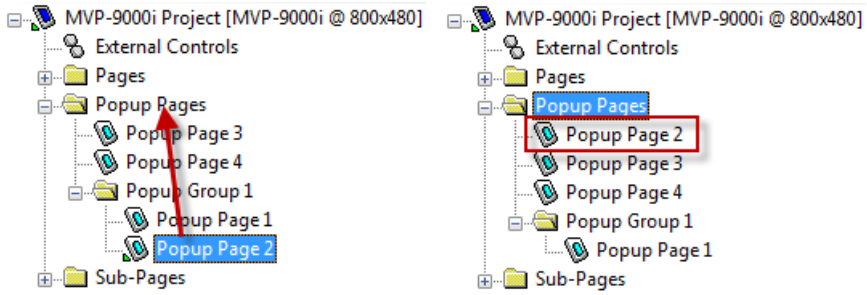


FIG. 155 Drag-and-Drop Popup Pages Out of Popup Page Group folder

2. Set the *Group* property to **None** in the Properties window - *General* tab (FIG. 156):

FIG. 156 Properties Window (General tab) - Group Property

Naming Popup Pages

- If the popup page (Standard or Sub-Page) name starts with an underscore (ex: " _sources"), it will be always be displayed on top.
- If you rename the popup page without the underscore, it will act normally.
- If you call two popups with the underscore, the last one called will be on top.
- System Template Pages always use a double underscore prefix.
- A copied template page will have a single underscore prefix.
- Note that the single underscore applies the effect of "always on top".

Renaming a Popup Page

To rename any Standard Popup Page or Sub-Page Popup Page in the active project, simply click on a Popup Page or Sub-Page Popup entry in the Workspace window (*Pages* tab) and type directly into the text field (FIG. 157):

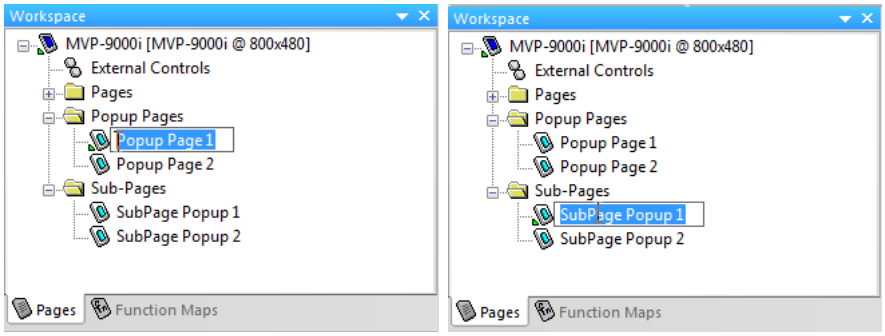


FIG. 157 Renaming a Standard Popup Page and a Sub-Page

Opening a Popup Page via the Workspace Window

Double-click on any Standard Popup Page or Sub-Page in the Workspace Navigator (*Pages* tab) to open the selected popup page in a Design View window (FIG. 158).

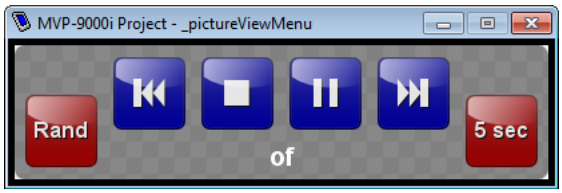


FIG. 158 Popup Page - Design View window

NOTE

Use the Show/Hide Popup Pages functions to display the selected Popup on the active Design View window (for a Page).

Show/Hide Popup Pages

The **Show Popup Page** and **Hide Popup Page** options can be selected via the Page menu, the Workspace Navigator context menu or the toolbar buttons (contained in the Main toolbar).

The **Hide All Popup Pages** toolbar button is available on the Main toolbar only (FIG. 159).

Show selected Popup Page (Standard or Sub-Page)

Hide selected Popup Page (Standard or Sub-Page)

Hide All Popup Pages (Standard or Sub-Page)

FIG. 159 Show/Hide Popup Pages toolbar buttons

This option deals with showing a selected Standard Popup Page on a page that is currently open in the Design View (FIG. 160):

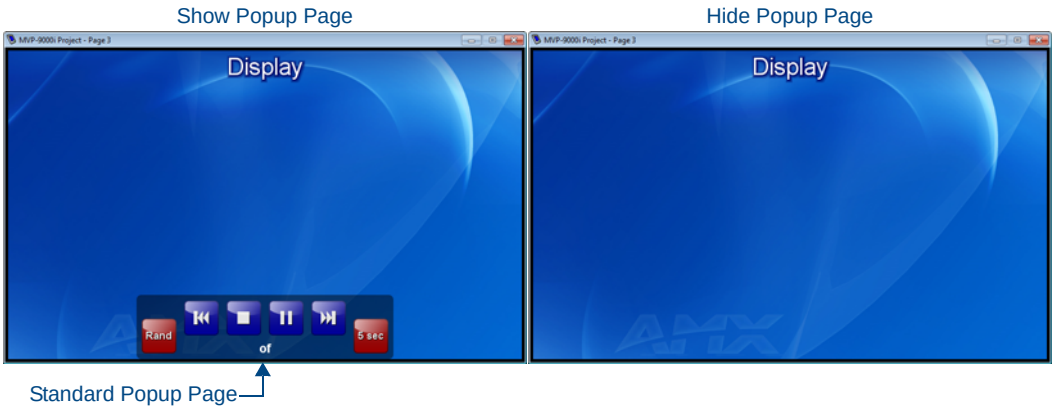


FIG. 160 Design View windows - Show/Hide Popup Pages

- **To show a Popup Page:** Select a Standard Popup Page in the Workspace Window (*Popup Pages* folder), and select *Show Popup Page* (or click the toolbar button).
- **To hide a selected Popup Page:** Select a Standard Popup Page in the Workspace Window (*Popup Pages* folder), and select *Hide Popup Page* (or click the toolbar button).
- **To hide all Popup Pages:** Select *Hide All Popup Pages* in the Page menu, Design View context menu, or click the Hide All Popup Pages toolbar button.

Additionally, you can drag and drop a Popup Page from the Workspace Window onto a Design View window to show the selected Popup Page.

Adding a Fill Color To a Popup Page

The method for adding a fill color to a Popup Page is identical for adding a fill color to a Page or Button. See the *Adding a Fill Color to a Page* section on page 95 for instructions. The only difference is that you will select a Popup Page rather than a Page before following the steps provided.

Adding a Bitmap to a Popup Page

The method for adding a bitmap to a Popup Page is identical for adding a bitmap to a Page or Button. See the *Adding a Bitmap to a Page* section on page 96 for instructions. The only difference is that you will select a Popup Page rather than a Page before following the steps provided.

Displaying a Video Source on a Popup Page

The method for adding a video source to a Popup Page is identical for adding a video source to a Page or Button. See the *Displaying a Video Fill on a Page* section on page 98 for instructions. The only difference is that you will select a Popup Page rather than a Page before following the steps provided.

Adding an Icon to a Popup Page

The method for adding an icon to a Popup Page is identical for adding an icon to a Page or Button. See the *Adding an Icon to a Page* section on page 99 for instructions. The only difference is that you will select a Popup Page rather than a Page before following the steps provided.

Adding Text to a Popup Page

The method for adding text to a Popup Page is identical for adding text to a Page or Button. See the *Adding Text to a Page* section on page 100 for instructions. The only difference is that you will select a Popup Page rather than a Page before following the steps provided.

Copying/Pasting Popup Pages

Copying Popup Pages

You can copy a popup page (Standard or Sub-Page Popup) either by selecting a Popup Page only (ensuring that no buttons are selected) in an active Design View window, or by single-clicking on a page in the Workspace Navigator (Pages tab) then clicking **Edit > Copy** from the main menu (or the *Copy* button in the Main toolbar).

Pasting Popup Pages

You can paste (by either clicking **Edit > Paste** from the main menu or the *Paste* button in the main toolbar) a previously copied popup page onto:

1. An active Design View
2. The panel name in the Workspace window (Pages tab)
3. The *Popup Pages* folder, or the *Sub-Pages* folder in the Workspace window (*Pages* tab)

Deleting Popup Pages From a Project

To delete a popup page from the active project, select the popup page to delete in the Workspace Navigator (Pages tab), and select **Edit > Delete**.

The program will prompt you to verify the popup page deletion first (FIG. 161):

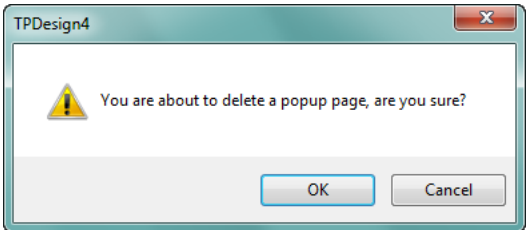


FIG. 161 Confirm deleting a Popup Page from the Project

Exporting Popup Pages as Image Files

Use the options in the *Export Page Images* dialog to export one or more Popup Pages (and/or Pages) in the current Project as image files. See the *Exporting Pages as Image Files* section on page 105 for instructions.

Sub-Pages

Overview

A *Sub-Page* is a specific type of Popup Page that is used to represent an individual item within a Scrolling Region. Each item displayed with a Scrolling Region is a separate Sub-Page (FIG. 162):

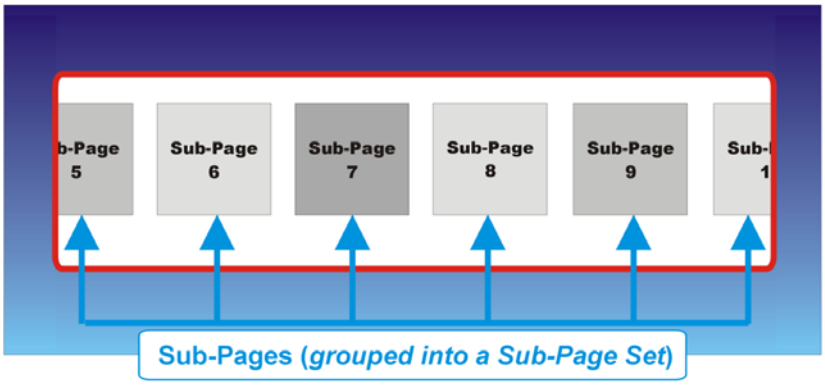


FIG. 162 Sub-Pages

NOTE

Sub-Pages must be grouped into a Sub-Page Set in order to be displayed in a Scrolling Region. See the Sub-Page Sets section on page 179 *for details.*

Sub-Pages are represented in the Workspace Window (*Pages* tab) within the *Sub-Pages* folder (FIG. 163):

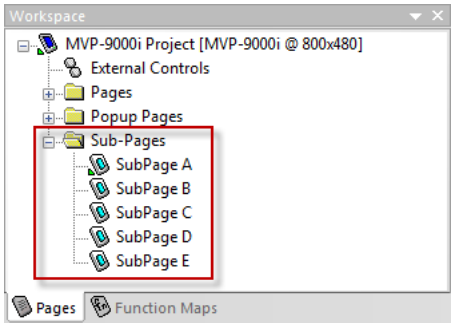


FIG. 163 Workspace Window (Pages tab) - Sub-Pages folder

Sub-Pages are created in the same way as Standard Popup Pages (either via the Popup Draw Tool, or via the *Add Popup Page* dialog) - see the *Creating a Sub-Page* section on page 176 for details.

Sub-Pages are differentiated from *Standard* Popups via the *Popup Type* (General) property for Popup Pages.

- Sub-Pages can only be displayed within a Sub-Page View button, as members of a *Sub-Page Set*. *Sub-Page Sets* are used to define an ordered group of Sub-Pages. Sub-Pages must be added to a *Sub-Page Set* to be displayed in a Sub-Page View button. See the *Sub-Page Sets* section on page 179 for details.
- Unlike Standard Popup Pages, Sub-Pages do not appear in Page Flip lists.
- Unlike Standard Popup Pages, Sub-Pages do not have *Top*, *Left*, or *Group* properties, since their position within the Sub-Page View button is determined by button properties set for the Sub-Page View button. See the *Setting Sub-Page View Button Properties* section on page 186 for details.
- The Address Port and Address Code assignments for Sub-Pages are provided only for use in SEND-COMMANDS (not to trigger actions).
- Unlike Standard Popup Pages, Sub-Pages do not utilize Channel Port/Code addresses.

TPD4 will convert any Sub-Pages to Standard Popups on a Save As Different Panel Type operation from a panel that supports the sub-page view feature to a legacy panel-type that doesn't.

More Information

Refer to the *Scrolling Regions* section on page 173 for information on using Sub-Pages to create a Scrolling Region:

- For details on creating Sub-Pages, see the *Creating a Sub-Page* section on page 176.
- For details on setting *General*, *Programming* and *States* properties for Sub-Pages, see the *Setting Sub-Page Properties* section on page 178.
- For details on creating a *Sub-Page Set* (a grouping of two or more Sub-Pages to be displayed in a Scrolling Region), see the *Creating Sub-Page Sets* section on page 179.

Working With Buttons

Overview

Buttons represent the primary functionality of the panel. They can be assigned various program-related properties such as Address and Channel Port/Code assignments, Level Control as well as String and Command Outputs that provide specific functionality based on NetLinx code (FIG. 164):

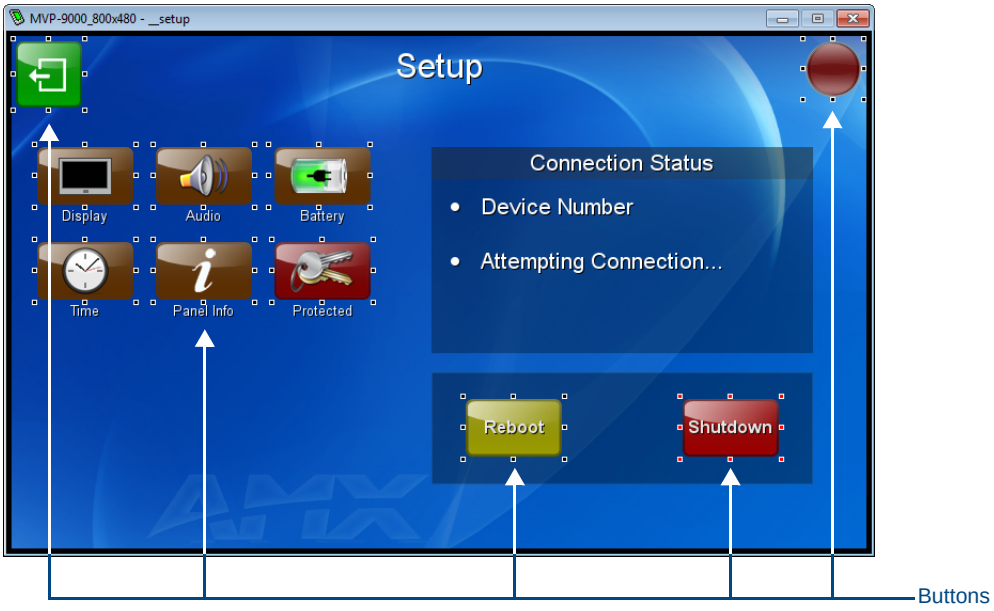


FIG. 164 Example Buttons

Like Pages and Popup Pages, Button properties (*General*, *Programming* and *States*) are managed via the Properties window. TPDesign4 provides various Button Types to accommodate different types of functions.

Button Types

TPDesign4 supports the following button types:

Supported Button Types	
General:	Basic dual-state buttons that can be used for most touch panel functions, not associated with any specific functionality (see the *General Buttons* section on page 140).
Multi-State General:	Basic multi-state buttons that can also be used for most touch panel functions, and support up to 256 states. Multi-state buttons are used to create animation effects (see the *Multi-State General Buttons* section on page 142)
Bargraph:	Level monitors and adjustable level controls that can be configured to monitor or adjust audio outputs and lighting levels (see the *Bargraph Buttons* section on page 143)
Multi-State Bargraph:	Level monitors and adjustable level controls that can be configured to monitor or adjust audio outputs and lighting levels, and support up to 256 states. Multi-state bargraph buttons also allow you to create custom bargraph sliders (see the *Multi-State Bargraph Buttons* section on page 146).
Joystick:	Vertical and horizontal direction controllers that can be used for pan and tilt control (typically for camera operation). Because Joystick buttons don't work in the same way as the other button types (in that they don't generate pushes/releases), there is no On state associated with them. Joystick buttons only use the Off state (see the *Joystick Buttons* section on page 151).
Text Input:	Intended only to display (non-interactive) text on the panel (see the *Text Input Buttons* section on page 152).

Supported Button Types (Cont.)	
Computer Control:	Allow you to connect to a PC running a VNC server for remote control applications (see the *Computer Control Buttons* section on page 153).
TakeNote:	Allow you to use a G4 panel to annotate to either a windows desktop or on other G4 panels (see the *TakeNote Buttons* section on page 156).
List Box:	Utilizes a collection of subordinate buttons to display either dynamic or static data as a scrollable list. List box buttons can be used to allow end-users to view data in list form, and select from the list (see the *List Box Buttons* section on page 159).
Sub-Page View:	Displays a set of Sub-Pages (called a *Sub-Page Set*). Sub-Page View buttons provide the ability to create Scrolling Regions on the panel (see the *Sub-Page View Buttons* section on page 157 for details). See the *Scrolling Regions* section on page 173 for details.

Creating New Buttons

In the Workspace window (Pages tab), double-click the Page or Popup Page to which the button will be added. This opens the target Page or Popup Page in a Design View window for editing.

There are two ways to create new buttons:

- Draw a button using the Button Draw Tool - click and drag on the active Design View window (see the *Drawing a Button* section on page 123).

The Button Draw Tool is used to create all button types except List Box Buttons.

- Copy and paste an existing button, and edit the new button properties as desired (see the *Copying/Pasting Buttons* section on page 134).

Button Draw Tools

Within the Selection/Drawing Tools toolbar is the Button Draw Tools drop-down menu (FIG. 165):

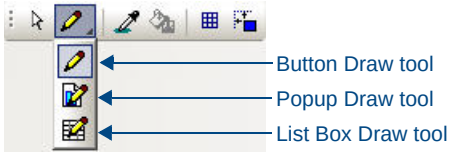


FIG. 165 Button Draw Tool drop-down menu

Click and hold the Button Draw Tool to select from the other types of Draw Tools:

- Button Draw Tool
- Popup Draw Tool
- List Box Draw Tool

Button Draw Tool

Click to activate the *Button Draw* tool in the *Selection/Drawing Tools Toolbar* (see the *Selection/Drawing Tools Toolbar* section on page 14):

FIG. 166 Button Draw Tool

The Button Draw tool allows you to draw new Buttons in the active Design View window.

- Within the Selection/Drawing Tools toolbar select the *Button Draw* Tool.
- Alternatively, select **Edit > Button Draw Tool** from the main menu.

Drawing a Button

1. Select the Button Draw Tool.
2. Open the Page (or Popup page) that the button will be added to, and place your cursor within the boundaries of an open Design View.
3. Hold down the left mouse button and drag the cursor diagonally. You will see a sizing rectangle as you drag the mouse, indicating the size of the button you are drawing (FIG. 167):

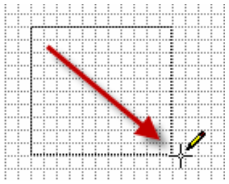


FIG. 167 Drawing a Button - Click and Drag

- Hold down the SHIFT key while drawing to constrain the button to a square.
- With an item selected in a Design View window, hold down the CTRL key while moving the item with the keyboard arrow keys to move by the grid size instead of a single pixel (regardless of the grid visibility or snap to grid setting). Holding the CTRL key while resizing the selected items with the keyboard will resize by the grid size.
- Minimum button size is *4 x 4 pixels*.

4. To complete the button draw action, release the left mouse button (FIG. 168):

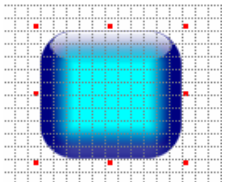


FIG. 168 Drawing a Button - Release

Upon the creation of a button on a page (or popup page) you will see red selection handles appear on the outsides of the button indicating edit focus.

- The button will be drawn on-screen showing the current default button properties.
- Buttons are always drawn in the *Off* State.
- The maximum number of buttons per page / popup page = *500*.

5. Use the fields and options in the *General*, *Programming* and *States* tabs of the Properties Window to specify properties for the selected button. See the *Editing Button Properties* section on page 127 for details.

NOTE

*The Button Type is set via the **Type** property in the Properties window (General tab). Select **Type** to select from a drop-down menu of Supported Button Types.*

6. Select **File** > **Save** to save your changes.

NOTE

*Select **View > Button Preview** to preview the button (click **Push** to simulate a button press) in the Button Preview window. See the Previewing a Button* section on page 138 *for details.*

Using the Drawing Assist Features

The *Order Assist*, *Position Assist* and *Size Assist* toolbars contain shortcuts to many layout and design control options for controlling various elements of existing button(s) size and position.

- See the *Order Assist Toolbar* section on page 17.
- See the *Position Assist Toolbar* section on page 17.
- See the *Size Assist Tools Toolbar* section on page 18.

Alignment & Sizing Dialog

To access the Alignment & Sizing dialog (FIG. 169), select two or more button in the Design View, and select **Layout > Alignment and Sizing**.

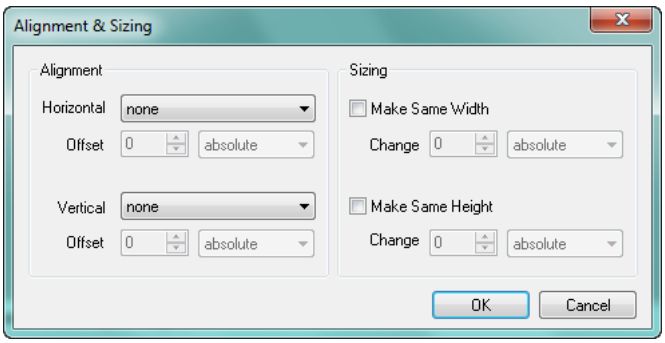


FIG. 169 Alignment & Sizing dialog

Use the options in this dialog to align and/or resize the selected buttons.

Select **Layout > Alignment & Sizing** to access this dialog.

- The **Alignment** options allow you to align the selected buttons horizontally, vertically (or both) along either the centers of the buttons, or along any edge (top, bottom, left or right). Note that the order in which the buttons are selected in the Design View window controls how several of these options work.
- The **Sizing** options allow you to resize the selected buttons to make them match in width, height or both. Note that the order in which the buttons are selected in the Design View window controls how several of these options work.

The options in this dialog include:

Alignment & Sizing Dialog options	
Alignment	
Horizontal	Select the type of horizontal alignment to apply to the selected buttons:
• none	No alignment (default setting).
• left edges	Aligns the left edges of all selected buttons.
• centers	Aligns the centers of all selected buttons.
• right edges	Aligns the right edges of all selected buttons.
• left edges to right	Aligns the left edges of selected buttons to the right edge of the button that was selected first.
• right edges to left	Aligns the right edges of selected buttons to the left edge of the button that was selected first.
• left to right spacing	Aligns the left edge of the first selected button to the right edge of the next selected button. All selected buttons are aligned this way in the order in which they were selected.
• right to left spacing	Aligns the right edge of the first selected button to the left edge of the next selected button. All selected buttons are aligned this way in the order in which they were selected.

Alignment & Sizing Dialog options (Cont.)	
• Offset	The horizontal alignment values may be offset either absolutely or incrementally. Indicate the number of pixels to offset the alignment options (range = 0 - the horizontal measurement of the selected panel in pixels). • Default = 0. • Positive values offset the selections to the right, negative values offset them to the left.
Vertical	Select the type of vertical alignment to apply to the selected buttons:
• none	No alignment (default setting).
• top edges	Aligns the top edges of all selected buttons.
• centers	Aligns the centers of all selected buttons.
• bottom edges	Aligns the bottom edges of all selected buttons.
• top edges to bottom	Aligns the top edges of selected buttons to the bottom edge of the button that was selected first.
• bottom edges to top	Aligns the bottom edges of selected buttons to the top edge of the button that was selected first.
• top to bottom spacing	Aligns the top edge of the first selected button to the bottom edge of the next selected button. All selected buttons are aligned this way in the order in which they were selected.
• bottom to top spacing	Aligns the bottom edge of the first selected button to the top edge of the next selected button. All selected buttons are aligned this way in the order in which they were selected.
• Offset	The vertical alignment values may be offset either absolutely or incrementally. • Indicate the number of pixels to offset the alignment options (range = 0 - the vertical measurement of the selected panel in pixels). • Default = 0.
Sizing	
Make Same Width	Resizes all selected buttons to match the width of the button that was selected first.
Change	Specify a number of pixels to add or subtract from the selections width (positive values add pixels, negative values subtract). Specify whether to adjust the sizing values *absolutely* or *incrementally*.
Make Same Height	Resizes all selected buttons to match the height of the button that was selected first.
Change	Specify a number of pixels to add or subtract from the selections height (positive values add pixels, negative values subtract). Specify whether to adjust the sizing values *absolutely* or *incrementally*.

Specifying the Button Type

To specify the button type for any button:

1. Select or a create a button.
2. In the *General* tab of the Properties Window, select **Type** to access the drop-down menu of supported button types (FIG. 170).

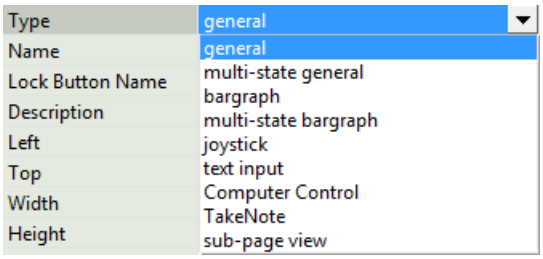


FIG. 170 Properties WIndow (General tab) - Button Type drop-down menu

3. Select the desired button type.

See the *Button Types* section on page 121 for details.

Setting Default New Button Parameters

The Drawing Tools toolbar (FIG. 171) contains shortcuts to several of the main drawing tools that control the button type, border style, font, font size, button fill color, border color and text color.

The selections made in the Drawing Tools Toolbar will apply to all newly created buttons.

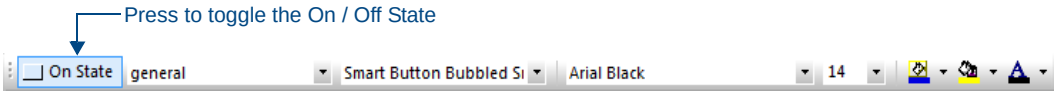


FIG. 171 Drawing Tools Toolbar

See the *Drawing Tools Toolbar* section on page 16 for details.

NOTE

The options in this toolbar are enabled only when a Drawing tool is selected.

The settings that are specified in this toolbar become the default settings for all new buttons, until the settings are changed. This way, you can quickly create sets of buttons that are visually consistent.

This toolbar is normally at the top of your screen and provides you with a mechanism for controlling various elements of future button creation.

This toolbar can either be free floating or docked, but cannot be docked in a vertical fashion, as the drop down lists contained on the toolbar do not support this type of docking.

On the extreme left side of the toolbar, you will see a button that will allow you to toggle the default choices for both the Off and the On state of a button. You can control the button type, border family, font, font size, button fill color, border color and text color.

To set new button parameters:

1. Select the Button Draw tool from the Button Selection/Draw toolbar (see the *Button Draw Tools* section on page 122).

NOTE

Buttons are always drawn in the Off state. The Drawing toolbar (shown above) allows you to control certain new button creation properties for both the Off and the On state of a button.

2. Click the down-arrow on the first drop-down menu to the right of the State button to select the type of button you want to create (default = **general)**. This selection becomes the default for all subsequent buttons, until the Button Type selection is changed (FIG. 172):

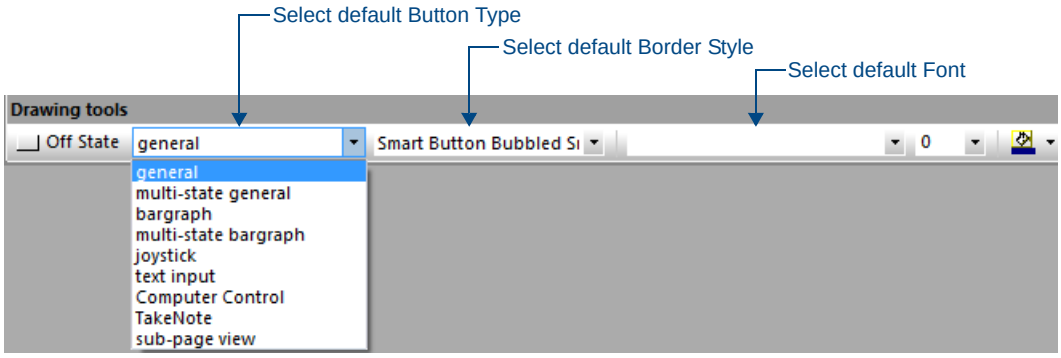


FIG. 172 Drawing Tools Toolbar - Button Type Drop-down

3. Click the down-arrow on the second drop-down menu (to the right of the Button Type drop-down) to select a Border Style for the button. This selection becomes the default for all subsequent buttons, until the Border Style selection is changed.

4. Use the next two drop-down menus to specify a Font and Font Size as the default text attributes for new buttons. These selections become the default text settings for all subsequent buttons, until the Font and Font Size specifications are changed.
   a. Click the down-arrow on the first palette button to set the **Border Color** for the button. Again, this selection becomes the default for all subsequent buttons, until the Border Color setting is changed.
   b. Click the down-arrow on the second palette button to set the **Fill Color** for the button. This selection becomes the default for all subsequent buttons, until the Fill Color setting is changed.
   c. Click the down-arrow on the third palette button to set the **Text Color** for the button. Of course, this selection becomes the default for all subsequent buttons, until the Text Color setting is changed.

Editing Button Properties

To edit Button Properties via the Properties Window, select the button property that you wish to modify, and enter (type or select) a new value in the corresponding field.

Once a property has been modified, either press the Enter key, the Prev or Next button, or left click the mouse in any box other than the current box to apply the change.

If the value is inappropriate for the selected object, you will be notified via a message, and the previous value will be replaced in the box.

Editing Multiple Selections

Buttons may be acted upon individually by clicking the Selection tool from the toolbar or selecting **Edit > Selection Tool** from the main menu, then clicking on the desired button.

You can also select multiple buttons, using any of the following techniques:

- Hold the Shift key and left-click.
- Click and drag outside the boundaries of the desired buttons to perform a marquis selection.
- To select all available buttons on a page or popup page you may either use the Ctrl+A hotkey, or select **Edit > Select All** from the main menu. Although you may select and retain the selection of buttons on multiple pages, you may only act on the selected buttons on one page / popup page at a time.

You can de-select a button by either selecting another button, or by left-clicking on the background of the page or popup page.

Using the Apply To All option

The **Apply To All** toggle button is located at the bottom of the Properties window (FIG. 173). Use the *Apply to All* option to set button properties to edit multiple buttons simultaneously.

- If the **Apply To All** button is *not* depressed, and you select more than one button to act on, the **Prev** or **Next** buttons will activate on the Properties window. Also note that while you have multiple buttons selected, only one of them has the edit focus at any given time. Use the **Prev** and **Next** buttons to cycle through the selected buttons to view each button's properties in the Properties window. The button represented in the Properties window is the one with edit focus. All modifications are always on the button with the edit focus.
- If the **Apply To All** button *is* depressed and you select more than one button to act on, the **Prev** or **Next** buttons are unavailable and every selected button has the edit focus. You may also notice that one or more (if not all) of the property values in the grid are blank. The only values that will display in the grid while the **Apply To All** button is depressed are those values that are common among all selected items. Typing in or changing a value in any property box will immediately affect all selected buttons, provided that the change can be applied to them all. In the event that a value is appropriate for one (or more) buttons but inappropriate for others, you will see a message that states that the value was only applied to those buttons for which it was valid.

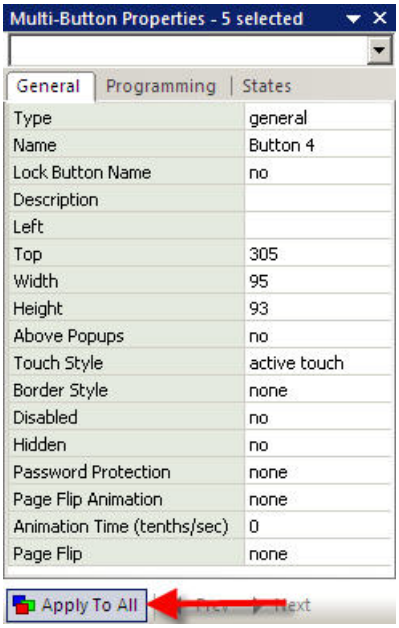


FIG. 173 Apply To All button

NOTE

This Apply To All button works on multiple button selections, but not on multiple states for a single button. To make state-oriented changes across multiple states, select the states that you want to edit and they will appear listed in the States tab of the Properties window.
To make changes that affect all states on a button at once, use the All States option in the States tab (located directly above the other listed states for the selected button).

Button State Properties

Use the *States* tab of the Properties window to set/edit state-oriented button properties. To edit any of the listed button properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The *State* tab of the Properties window works in conjunction with the *State Manager* window. Note that if the State Manager is not displayed, or if no state(s) are selected in the State Manager, the States tab shows a list of *all* states associated with the selected button.

Button States - Properties Window (States tab)

Each state represented in the *States* tab is a collapsed folder containing the state properties for that particular state. Click the + symbol to expand each folder. Use the **All State**s option to apply any changes you make to all states on the selected button (FIG. 174).

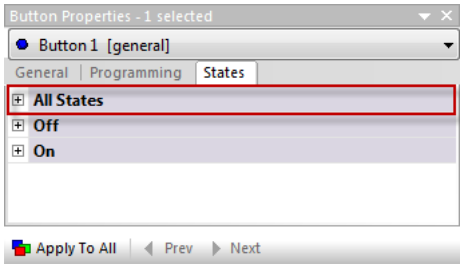


FIG. 174 Properties window (States tab) - All States

Note that if you have multiple buttons selected (Shift+click to select multiple buttons a page), the *All States* option only affects states for the button that has Edit Focus.

The button with edit focus would be the last one selected, and is indicated by having red-colored square handles, as opposed to the black squares that indicate that a button is selected, but does not currently have edit focus (FIG. 175):

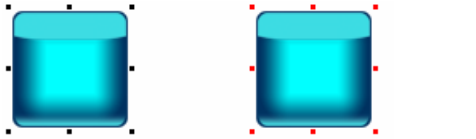


FIG. 175 Selected Button and Selected Button with Edit Focus

Button States - State Manager

FIG. 176 shows an example of a General button (which has two states) displayed in the State Manager window:

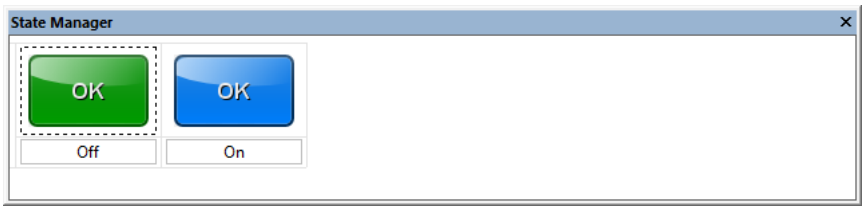


FIG. 176 State Manager window - General Button

FIG. 177 shows an example of a Multi-State General button (with 12 states) displayed in the State Manager window:

FIG. 177 State Manager window - Multi-State General Button

See the *Working With States* section on page 293 for details.

Generated Button Names

When new buttons are created, by default the buttons are automatically given a sequential name composed of the button *number* (relative to the number of buttons already created in the Project).

However, TPD4 goes further in automatically generating a descriptive name for the button, based on the text and/or bitmap applied to the button:

- If you apply text to the button, the button text is substituted for the button number. For example if you create a new button (which is automatically named "*Button 9*"), then add the text "*Welcome*", note that the button is automatically renamed to "*Welcome*". Note that this name change occurs on the fly, and does not require a Save operation.
- Text on a button always overrides the presence of a bitmap. If there is text associated with a button, and you add a bitmap, the button name will not change. However, if the button has no text, when you apply a bitmap to the button, the button is automatically renamed to reflect the bitmap file name (i.e. "*Background*").

  Additionally, if there is text associated with a button and you add an icon, the button name will not change. However, if the button has no text, when you apply an icon to the button, the button is automatically renamed to reflect the icon's name.
- Note that if you change the text, the button is again renamed to reflect the updated text. Furthermore, any time you change the bitmap *or* the text on the button, the button name is automatically updated with either the latest text or bitmap assignment.

This is where the **Lock Button Name** option (General tab of the Properties Window) comes into play. By default, the Lock Button Name option is set to **Off**. At any point in the design process, click **Lock Button Name** and select **Yes** to prevent the button from being *automatically* renamed by the program when you edit the text or bitmap assignment(s).

However, *Lock Button Name* does not prevent you from manually renaming the button, via the **Name** field.

Page Flips

A basic touch panel page design concept is the *Page Flip*. A page flip is a button attribute that allows the user to press a button to "flip" through different panel pages.

A basic example would be a button labeled "DVD Player" on a main page that when touched, opens a DVD Player page, containing only buttons that control the DVD player.

Typically you would set up a different control page for each piece of equipment. Organization of device controls is essential to good touch panel design, and page flips allow you to separate, organize and cross-link your control pages.

Page Flips are defined via the *Page Flip* (General) button property.

NOTE

The MVP-9000i 9" Modero ViewPoint Touch Panel with Intercom supports several Page Flip Animations and Page Gestures.

Creating a Page Flip

1. Select a (or create a new) button.
2. In the Properties window (*General* tab), click on **Page Flip** to enable the editable field (FIG. 178):

FIG. 178 Properties window (General tab) - Page Flip Property

3. Click the browse button (**...**) to open the *Button Page Flip Actions* dialog (FIG. 179):

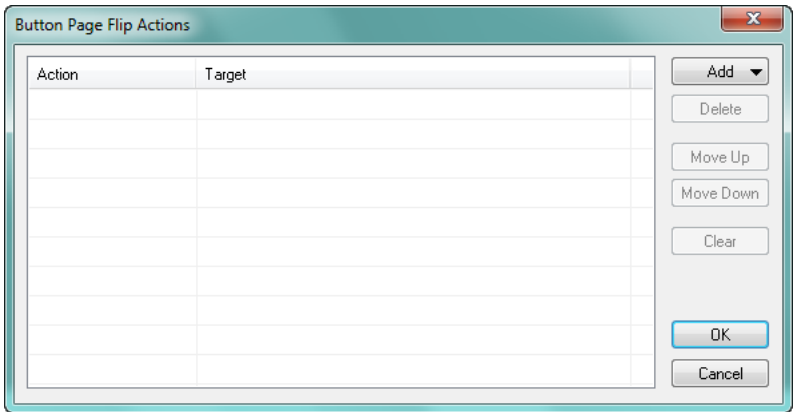


FIG. 179 Button Page Flip Actions dialog

4. Click the **Add** command button to create a new page flip for this button, and access a drop-down list of Page Flip Actions (FIG. 180):

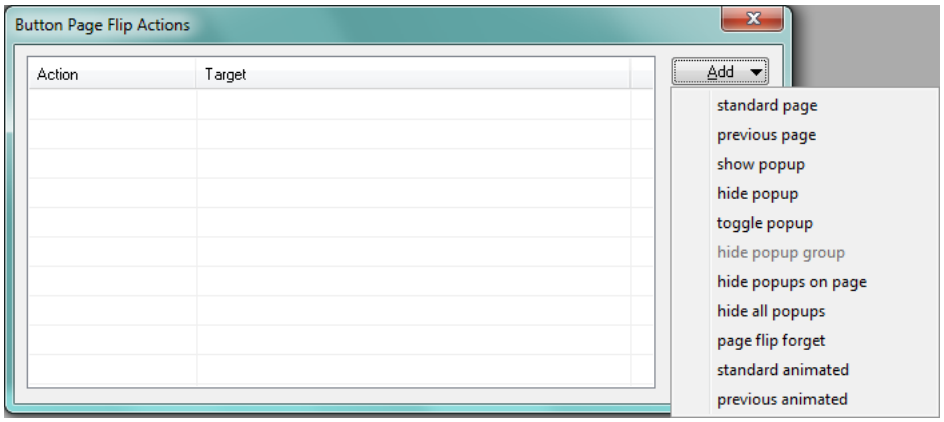


FIG. 180 Button Page Flip Actions dialog - Page Flip Actions drop-down

5. Depending on the type of page flip action selected, you may need to also specify the target page, popup page or popup group to open. Click the down arrow in the *Target* column to select the target of the selected *Page Flip Action*. See *Page Flip Actions* below for details.
6. Repeat this process as desired to create multiple page flips on the button (FIG. 181):

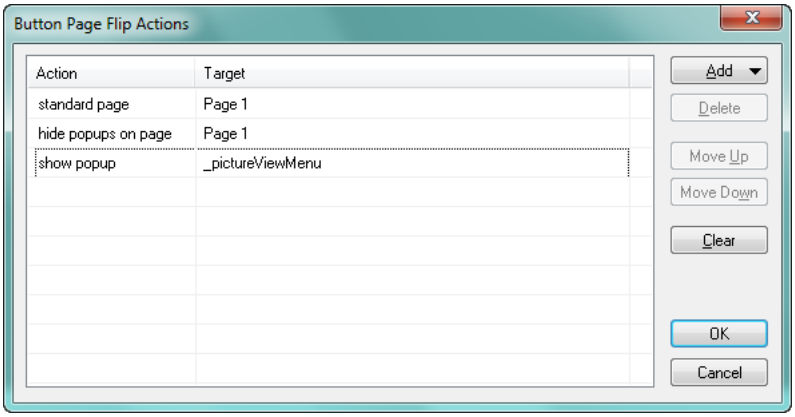


FIG. 181 Button Page Flip Actions dialog

- You can apply multiple page flips to any button.
- Use the up and down arrows to re-arrange the order of the page flips if necessary.

TPD4 supports a shortcut for adding page flips: Simply select the target page or popup page for the flip in the Workspace window (Pages tab), drag it into a Design View window and drop it onto a button to create a flip to that page or popup page. Alternatively, you can also drag and drop a page or popup page from the Workspace window onto the *Page Flip* property in the Properties window (General tab).

- By default, dropping a page will add a 'standard page' flip action, and dropping a popup will add a 'show popup' flip action to that button.
- If dragged with the right mouse button, the drop will offer a list of all applicable page flip actions.

Page Flip Actions

With a button selected in a Design View window, click **Page Flip** in the Properties window (*General* tab) to open the *Button Page Flip Actions* dialog, where you can set the type of page flip to apply to the selected button, and specify the target page for the page flip (see FIG. 179 on page 130).

Click the **Add** command button to access the *Page Flip Actions* drop-down list which allows you to select from a list of available page flip actions:

Page Flip Actions	
• Standard Page	This selection populates the *Target* list box with a list of standard pages in your project. Select a target page for the page flip. Multiple Standard page flips are allowed.
• Previous Page	This selection sets the page flip to go to the previous page (relative to the order of existing page flips) when the button is touched.
• Show Popup	This selection populates the *Target* list box with a list of popup pages in your project. Select a target popup page for the page flip (to show when the button is touched).
• Hide Popup	This selection populates the *Target* list box with a list of popup pages in your project. Select a target popup page for the page flip (to hide when the button is touched).
• Toggle Popup	This selection populates the *Target* list box with a list of popup pages in your project. Select a target popup page for the page flip (to toggle hide/show when the button is touched).
• Hide Popup Group	This selection populates the *Target* list box with a list of popup page groups in your project. Select a target popup page group for the page flip (to hide when the button is touched).
• Hide Popups on Page	This selection populates the *Target* list box with a list of standard pages in your project. Select the page that you want to hide the Popups on when the button is touched.
• Hide All Popups	This selection sets the page flip to clear all popup pages when the button is touched.
• Page Flip Forget	This selection flips to the page specified, but does not retain the source page in the page flip stack (which is used to execute previous page flips). Use this option when you do not wish to return to the page that initiated the page flip when a subsequent previous page flip action is performed. This allows the user start on page one, flip to page two, flip to page three, then with a page flip go directly back to page one.
• Standard Animated (MVP-9000i only)	This selection populates the *Target* list box with a list of standard pages in your project. Select a target page for the page flip. Multiple Standard page flips are allowed.
• **Previous Animated (MVP-9000i only)**	This selection sets the page flip to go to the previous page (relative to the order of existing page flips) when the button is touched.

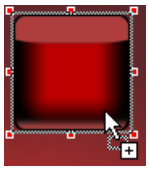
Note that Page Flip Animations work with Pages only, not with Popup Pages. When this option is selected, the selected Page Flip Animation settings are used as the Page Flip Action for this page flip.

Multiple Popup actions like Toggle popup, Show Popup and Hide Popup for the same Popup Page are allowed on the same button.

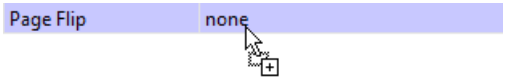
Drag & Drop To Set Page Flips

TPD4 supports a shortcut for adding page flips: Simply select the target page or popup page for the flip in the Workspace window (Pages tab), drag it into a Design View window and drop it onto a button to create a flip to that page or popup page.

Alternatively, you can also drag and drop a page or popup page from the Workspace window onto the *Page Flip* property in the Properties Window (*General* tab):



Drag-and-drop a Page or Popup Page frm the Workspace Window (*Pages* tab) oto a button in the Design View window



Drag-and-drop a Page or Popup Page from the Workspace Window (*Pages* tab) onto the Page Flip (General) button property

FIG. 182 Setting Page Flips via Drag and Drop

Creating Page Flip Animations

The MVP-9000i 9" Modero ViewPoint Touch Panel with Intercom supports several Page Flip Animations. Page Flip Animations provide animated transition effects that are used for a Page Flips to further enhance the touch panel UI.

NOTE

Page Flip Animations are not supported for showing/hiding Popup Pages.

1. With a button selected in a Design View window, click in the **Page Flip** row of the Properties window (General tab) to enable the Browse (...) button (FIG. 183):

FIG. 183 Properties window (General tab) - Page Flip property

2. Click the Browse button to open the *Button Page Flip Actions* dialog (see FIG. 179 on page 130).
3. Click the **Add** button, and select **Standard Animated** from the drop-down list. This adds a new entry to the Button Page Flip table (FIG. 184):

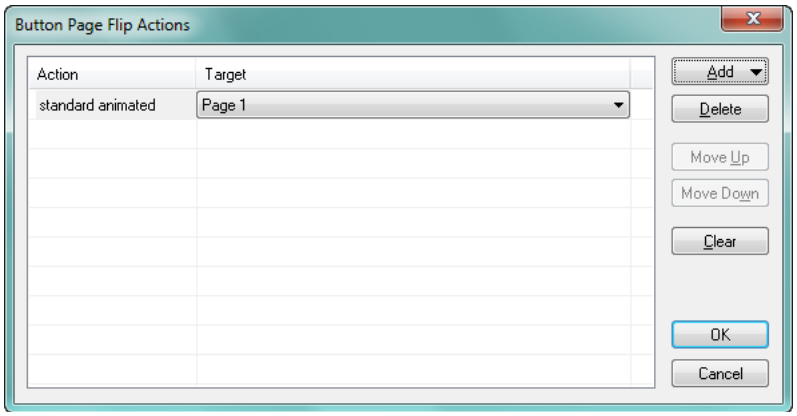


FIG. 184 Button Page Flip Actions dialog - Standard Animated action

4. In the *Target* column, click the down arrow to select the target page for this page flip.
5. Click **OK** to close the *Button Page Flip Actions* dialog. The selected Page Flip Action (in this case *Standard Animated*) and the target Page are indicated in the *Page Flip* row of the Properties table (FIG. 185):

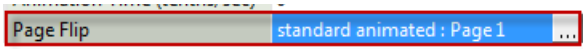


FIG. 185 Properties window (General tab) - Page Flip property (indicating *Standard Animated* Page Flip Action)

6. Click in the **Page Flip Animation** property to enable the Browse (...) button (FIG. 186):

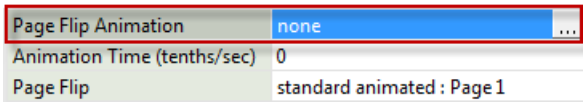


FIG. 186 Properties window (General tab) - Page Flip Animation property

7. Click the Browse button to open the *Page Flip Animation* dialog (FIG. 187). Note that this option is only available for panels that support Page Flip Animations (i.e. MVP-9000i):

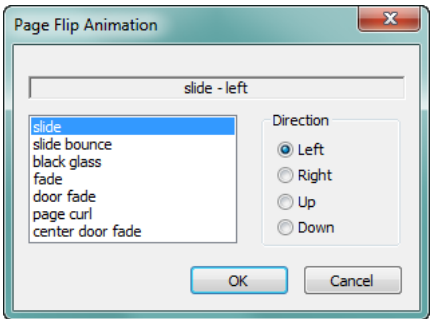


FIG. 187 Page Flip Animation dialog

8. Select a animation effect from the *Page Flip Animations* list on the left side of the dialog.
   - Note that depending on the Animation selected, a set of *Animation Options* may also be presented on the right side of the dialog.
   - Select an *Animation Option* button to define either the *Direction* or *Origin* of the selected transition effect, as applicable.
9. Click **OK** to close the *Page Flip Animation* dialog. The selected Page Flip Animation is indicated in the *Page Flip Animation* row of the Properties table.
10. Specify the amount of time the transition effect will take to complete, in .10 second increments, via the **Animation Time (tenths/sec)** property (FIG. 188):

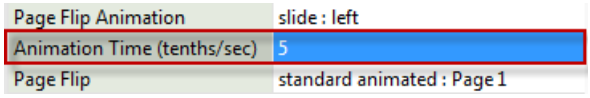


FIG. 188 Properties window (General tab) - Animation Time property

For example, a setting of "5" indicates a that the animation will take a half-second to complete.

Copying/Pasting Buttons

The ***Copy*** and ***Paste*** functions in TPD4 always work on the *element* (including buttons, bitmaps, even individual button properties displayed in the Properties window) which has the current Edit Focus. This means the *last thing selected*, which is not always necessarily a button displayed in the Design View windows.

For example, if you have selected an item in the Properties window (let's say you've selected "Channel Port", and you perform a "Copy", then you will have copied only the Channel Port entry in the Properties window, and not the associated button (even though it is selected in the Design View window). You can then paste the Channel Port number anywhere else in the Properties window (where the copied data is considered to be a valid entry).

If for example you had copied the value "410" from the **Left** (position) field in the Properties window, you are not allowed to paste it to the Address Port field, since it is not a valid Address Port number.

Copying Buttons:

Copying a button or buttons from a page or popup page is possible by selecting the desired buttons in an active Design View window then either selecting **Edit > Copy** from the main menu or by clicking the Copy button in the main toolbar.

Pasting Buttons:

You can paste (by either clicking **Edit > Paste** from the main menu or the **Paste** button in the main toolbar) a previously copied button or buttons onto:

1. A page or popup page name in the Workspace Navigator window - Pages tab (no open Design View window required) or
2. The active Design View window.
   - When you copy a button from one project into another project that is using a different palette, the pasted button will use the palette that is currently active in the project that the button is copied into (as opposed to the palette that was used to create the button). Depending on the differences between the palette in the button's source project and the palette in the target project, this can cause color shifting on the button.
   - If, when copying buttons from a page to a popup page, the location or dimensions of the copied buttons exceeds the boundaries of the target popup page, the pasted items will attempt to maintain their size, only adjusting the properties required for them to properly fit on the target popup page.

Searching For Button Properties

Use the *Find* dialog to search for any button property value either within the currently open Page, or across the entire Project (FIG. 189).

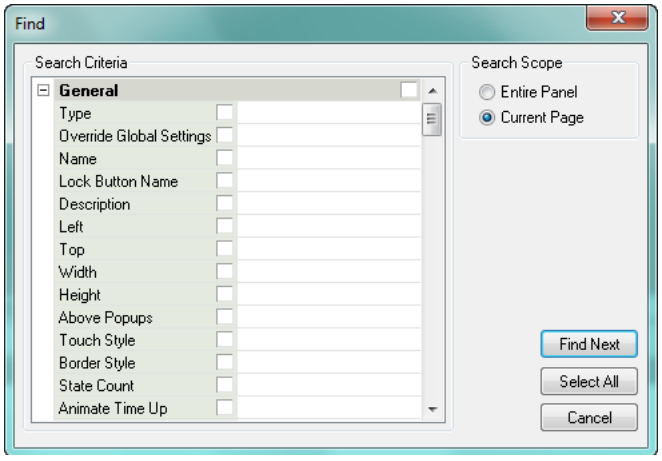


FIG. 189 Find dialog

Use the options in this dialog to search for specific *General*, *Programming*, or *State* button property. For example, you can perform a search based on button type, name, border style, and state count (among many others), or any combination of search criteria.

To search for button properties:

1. Select **Edit > Find** (or click the toolbar button) to open the *Find* dialog.
2. In the *Search Criteria* table, select the button properties to use as the search criteria. You can include any General or State button property as search criteria. General and State properties are separated into two sections (labeled as *General* and *States*).
   - Scroll down to view all of the available button properties that can be used as search criteria.
   - Click the minus symbol (-) next to the *General* and *States* headings to collapse the sections. Click the plus symbol (+) to expand the views.
   - To select all General button properties, click in the checkbox next to the *General* heading; to select all State-oriented button properties, click in the checkbox next to the *States* heading.
3. In the *Search Scope* area, select either **Entire Panel** or **Current Page**.
   - If the scope of the search is set to *Entire Panel*, the *Select All* button is disabled, in which case you can use the **Find Next** button to cycle through the pages that contain buttons whose values match the search criteria.
   - If the scope of the search is set to *Current Page*, use the **Find Next** button to search the current page only, based on the specified criteria and scope.

4. When the first instance of the criteria is found, the *Find In Page dialog* is compressed to only show the buttons that satisfy the search criteria, and the first button found that satisfies the search criteria is selected in the Design View.
   - Select **Find Next** to continue the search.
   - Select **Select All** to close the Find dialog and select every button that meets the criteria.
   - The program will inform you if no buttons are found that match the search criteria.

NOTE

When you select a General as well as a State-oriented search criteria, only buttons that match the General criteria, and within that set, the states that match the State criteria will be candidates for the replace operation. For example, if you set the search criteria to include both the Glow-S border style (a General property) and yellow as the Fill Color (a State property), only those buttons with a Border Style of Glow-S are candidates, and within that set of candidates, only those states whose Fill Color is set to yellow satisfy the search criteria.

Searching and Replacing Button Properties

Use the *Find and Replace* dialog to find and (optionally) replace any property value with another value of your choosing (FIG. 190):

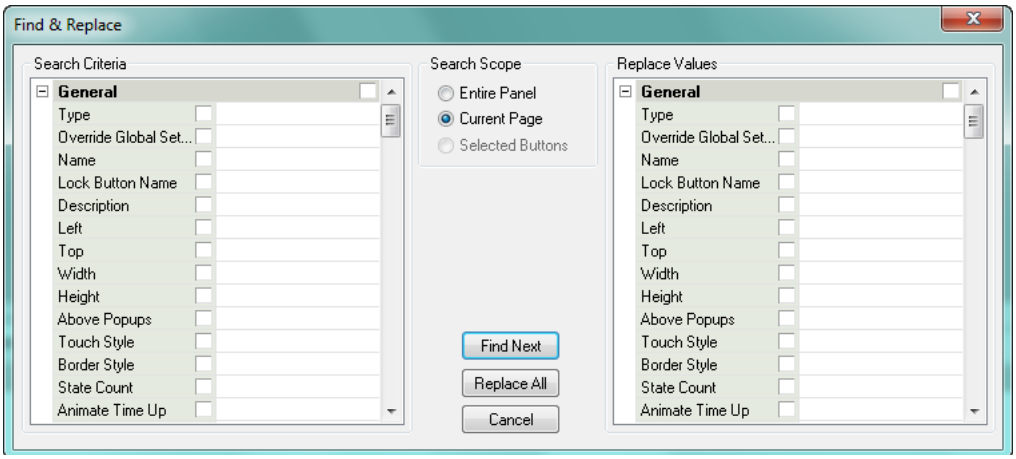


FIG. 190 Find and Replace dialog

Specify the scope of the search to include either the currently open Page only, or across the entire Project.

To search and replace button properties:

1. Select **Edit > Find & Replace** (or click the toolbar button) to open the *Find and Replace* dialog.
2. In the *Search Criteria* table, select the button properties to use as the search criteria. You can include any General or State button property as search criteria. General and State properties are separated into two sections (labeled as *General* and *States*).
   - Scroll down to view all of the available button properties that can be used as search criteria.
   - Click the minus symbol (-) next to the *General* and *States* headings to collapse the sections. Click the plus symbol (+) to expand the views.
   - To select all General button properties, click in the checkbox next to the *General* heading; to select all State-oriented button properties, click in the checkbox next to the *States* heading.
3. In the *Search Scope* area, select either **Entire Panel** or **Current Page**.
   - If the scope of the search is set to *Entire Panel*, the *Select All* button is disabled, in which case you can use the **Find Next** button to cycle through the pages that contain buttons whose values match the search criteria.
   - If the scope of the search is set to *Current Page*, use the **Find Next** to search the current page only, based on the specified criteria and scope.
4. In the *Replace Values* table, select the button properties to use as the replace values. The *Replace Values* do not necessarily have to match the *Search Criteria* (although they may). It is also possible to replace multiple values or establish multiple search criteria.

For example, to change the Border Style on one or more buttons, select **Border Style** in the *Search Criteria* table, then select the particular border style to search for from the drop-down list. Then, select **Border Style** in the *Replace Values* table, and select the desired replacement border style from the drop-down list. Repeat this process for as many other button properties as needed.

5. When the first instance of the criteria is found, the *Find In Page dialog* is displayed, listing the buttons that satisfy the search criteria, and the first button found that satisfies the search criteria is selected in the Design View.
   - Select **Find Next** to continue the search.
   - Select **Replace All** to close the Find dialog select every button that meets the criteria. The program informs you of the number of buttons affected by this change.
   - All replace actions support full Undo / Redo capabilities.
   - The program will inform you if no buttons are found that match the search criteria.

Adding a Fill Color To a Button

The method for adding a fill color to a Button is identical for adding a fill color to a Page or Popup. See the *Adding a Fill Color to a Page* section on page 95 for instructions. The only difference is that you will select a Button rather than a Page before following the steps provided.

Adding a Bitmap to a Button

The method for adding a bitmap to a Button is identical for adding a bitmap to a Page or Popup See the *Adding a Bitmap to a Page* section on page 96 for instructions. The only difference is that you will select a Button rather than a Page before following the steps provided.

- Button bitmaps are state-specific, so keep in mind wether you want the bitmap to occur on all states, or only on specific states. Each state of the selected button is represented individually in the States tab of the Properties window, so use the *Bitmap* field in the state that you want to change, or use the *Bitmap* field under **All States** to add the bitmap to every state in the button.
- See the *Working With States* section on page 293 for details.

Adding an Icon to a Button

The method for adding an icon to a Button is identical for adding an icon to a Page or Popup. See the *Adding an Icon to a Page* section on page 99 for instructions. The only difference is that you will select a Button rather than a Page before following the steps provided.

- Button icons are state-specific, so keep in mind wether you want the icon to occur on all states, or only on specific states. Each state of the selected button is represented individually in the States tab of the Properties window, so use the *Icon Slot* field in the state that you want to change, or use the *Icon Slot* field under **All States** to add the icon to every state in the button.
- See the *Working With States* section on page 293 for details.

Adding Text to a Button

The method for adding text to a Button is identical for adding text to a Page or Popup. See the *Adding Text to a Page* section on page 100 for instructions. The only difference is that you will select a Button rather than a Page before following the steps provided.

- Button text is state-specific, so keep in mind wether you want the text to occur on all states, or only on specific states. Each state of the selected button is represented individually in the *States* tab of the Properties window, so use the *Text* field in the state that you want to change, or use the *Text* field under **All States** to add the text to every state in the button.
- See the *Working With States* section on page 293 for details.

Displaying a Video Source on a Button

The method for adding a video source to a Button is identical for adding a video source to a Page or Popup. See the *Displaying a Video Fill on a Page* section on page 98 for instructions. The only difference is that you will select a Button rather than a Page before following the steps provided.

Previewing a Button

The *Button Preview* window allows you to preview a button so you can check size, border, text and color settings on a Push and Release of the button (FIG. 191).

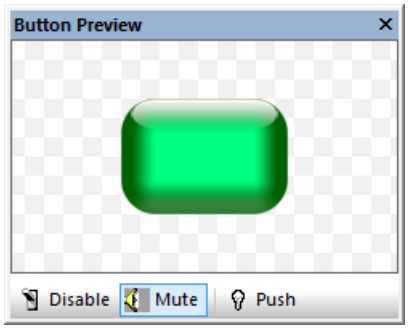


FIG. 191 Button Preview Window

Button Preview window

Select **View > Button Preview** to open the *Button Preview* window.

- The Button Preview window displays a preview of the selected button. Initially the button is shown in its Off state.
- Click on the button in the Button Preview window to "push" the button in an identical fashion to utilizing the Push command button.

NOTE

Button Preview is not available for Joystick or Listbox Buttons.

This window includes three command buttons:

- **Disable** - Click the disable button to disable the button preview, but not close the Button Preview window. Click again to enable the preview.
- **Mute** - Click to Mute any sounds associated with this button.
- **Push** - Click the Push button to simulate a push on the selected button. This allows you to visually preview the On/Off states (and all states in between, for multi-state buttons).

Right-click inside the preview area of the Button Preview window to access the *Button Preview context menu*.

Like the other windows in TPD4, the Button Preview window is fully dockable, but initially it opens undocked. Double-click inside the title bar to dock the window.

Button Preview context menu

Right-click inside the preview area of the Button Preview window to access the Button Preview context menu:

Button Preview context menu	
Size	Click to open the Size fly-out menu, where you can specify the size of the preview image (25%, 50%, 75%, 100%, or Auto). The default size setting is Auto, which automatically scales the preview image to fit the Button Preview window (which is also scalable). These options only affect the size of the preview image, not the button itself.
Background	Click to open the Background fly-out menu, where you can specify the way that the background color in the button preview windows appears. Depending on the colors used, you may want to experiment with these options to help you view the various aspects of the button (text, icon and/bitmap). • *None* - no background color is displayed (so it appears white). • *Checkerboard* - renders the background in a checkerboard pattern (helpful when dealing with transparent buttons). • *Page Fill Color* - renders the background in the same color as was assigned to the page containing the selected button.

To preview a button:

1. Select the button that you want to preview.
2. Select **View > Button Preview** to open the Button Preview window.
   - Like the other windows in TPD4, the Button Preview window is fully dockable, but initially it opens undocked. Double-click inside the title bar to dock the window.
   - The Button Preview window displays a preview of the selected button. Initially the button is shown in its Off state.
3. Click on the **Push** button.
   - Button Preview is not available for Joystick buttons.
   - Button Preview for List Box Buttons is only supported for a selected child button in unmanaged mode, but will not have any data linkage. In this case, Button Preview functions the same as for a General button with no text or graphics.

Date and Time Buttons

Creating a Date Button

A *Date Button* is a button that displays the current date on the panel. It is a read-only (non-interactive) button.

To create a date button:

1. Create a new button. The button can be of any type, but normally you would use the *General* button type.
2. In the *Programming* tab of the Properties window, click the *Address Port* field to enable the drop-down menu.
3. Select **0-setup port** from the drop-down menu (FIG. 192):

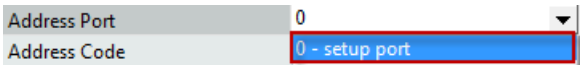


FIG. 192 Properties window (Programming tab) - Address Port = *0 - setup port*

4. Click the *Address Code* field to enable the drop-down menu (*none*, *Date Display*, *Time Display*):

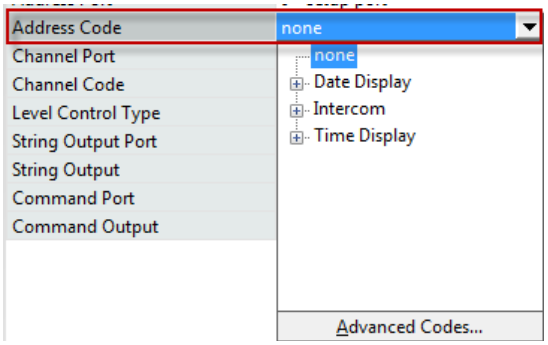


FIG. 193 Properties window (Programming tab) - Address Code menu

5. Click the plus (+) symbol next to **Date Display** to expose a drop-down menu of time display formats (FIG. 194):

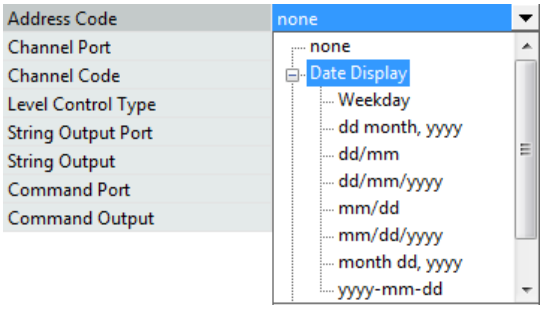


FIG. 194 Properties window (Programming tab) - Date Display menu

6. Select the desired display format.

Creating a Time Button

A *Time Button* is a button that displays the current time on the panel. It is a read-only (non-interactive) button.

To create a time button:

1. Create a new button. The button can be of any type, but normally you would use the *General* button type.
2. In the *Programming* tab of the Properties window, click the *Address Port* field to enable the drop-down menu.
3. Select **0-setup port** from the drop-down menu (see FIG. 192 on page 139).
4. Click the *Address Code* field to enable the drop-down menu (*none*, *Date Display*, *Time Display*).
5. Click the plus (+) symbol next to **Time Display** to expose a drop-down menu of time display formats (FIG. 195):

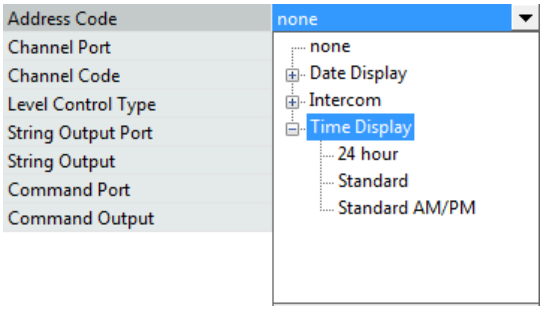


FIG. 195 Properties window (Programming tab) - Time Display menu

6. Select the desired display format (*24-hour*, *Standard* or *Standard AM/PM*).

NOTE

Time and Date buttons do not display any text when viewed in TPD4. The time or date is only visible once the project is loaded on a touch panel.

General Buttons

General buttons are basic dual-state buttons that can be used for most touch panel functions, and are not associated with a specific functionality.

FIG. 196 Example - General button

Creating General Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **General** as the Type property (FIG. 197).

   This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

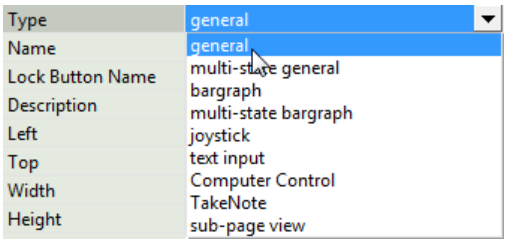


FIG. 197 Properties window (General tab) - Type Property (General)

4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window). See the *Setting Button Properties: General Buttons* section on page 141 for details.
5. Select **File** > **Save** to save your changes.

Setting Button Properties: General Buttons

Once you have created a *General* button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit the button properties. The following button properties are supported for **General** buttons:

Button Properties - General Buttons		
General Properties	Programming Properties	State Properties
• Type - page 251	• Feedback - page 255	• Draw Order - page 286
• Name - page 246	• Address Port - page 254	• Border Name - page 285
• Lock Button Name -page 246	• Address Code - page 254	• Chameleon Image - page 285
• Description - page 241	• Channel Port - page 254	• Border Color - page 285
• Left - page 243	• Channel Code - page 254	• Fill Color - page 286
• Top - page 250	• Level Control Type - page 256	• Text Color - page 289
• Width - page 251	• String Output Port - page 257	• Text Effect Color - page 290
• Height - page 242	• String Output - page 257	• Overall Opacity - page 287
• Above Popups - page 238	• Command Port - page 255	• Video Fill - page 291
• Touch Style - page 251	• Command Output - page 255	• Video Cropping - page 290
• Border Style - page 240		• Video Touch Pass-Thru - page 291
• Disabled - page 241	***Note**: Maximum command, string and text length = 4096 characters.*	• Streaming Source - page 288
• Hidden - page 242		• Bitmap - page 285
• Password Protection - page 247	***Note**: See the Level Control Parameters* section on page 284.	• Bitmap Justification - page 285
• Page Flip Animation - page 247		• Bitmap X Offset - page 285
• Animation Time - page 239		• Bitmap Y Offset - page 285
• Page Flip - page 247		• Scale Bitmap To Fit - page 288
		• Icon Slot - page 286
		• Icon Justification - page 286
		• Icon X Offset - page 286
		• Icon Y Offset - page 287
		• Font - page 286
		• Text - page 289
		• Text Justification - page 290
		• Text X Offset - page 290
		• Text Y Offset - page 290
		• Text Effect - page 290
		• Word Wrap - page 291
		• Sound - page 288

Multi-State General Buttons

Multi-State General buttons are basic multi-state buttons that can be used for most touch panel functions, and that support up to 256 states. Use multi-state buttons when you want to utilize animation effects (FIG. 198).

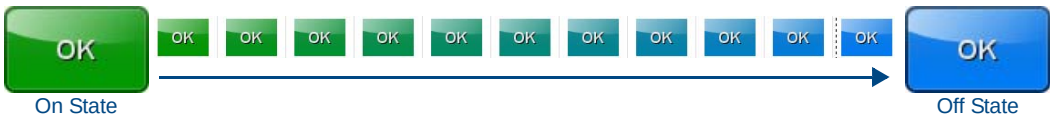


FIG. 198 Example - Multi-State General button

Creating Multi-State General Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **Multi-State General** as the *Type* property (FIG. 199 on page 142).

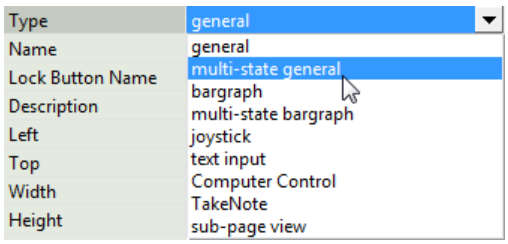


FIG. 199 Properties window (General tab) - Type Property (Multi-State General)

This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window). See the *Setting Button Properties: Multi-State General Buttons* section on page 142 for details.
5. Select **File > Save** to save your changes.

Setting Button Properties: Multi-State General Buttons

Once you have created a *Multi-State General* button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button. The following button properties are supported for **Multi-State General** buttons:

Button Properties - Multi-State General Buttons		
General Properties	Programming Properties	State Properties
• Type - page 251	• Feedback - page 255	• Draw Order - page 286
• Name - page 246	• Address Port - page 254	• Border Name - page 285
• Lock Button Name -page 246	• Address Code - page 254	• Chameleon Image - page 285
• Description - page 241	• Channel Port - page 254	• Border Color - page 285
• Left - page 243	• Channel Code - page 254	• Fill Color - page 286
• Top - page 250	• Level Control Type - page 256	• Text Color - page 289
• Width - page 251	• String Output Port - page 257	• Text Effect Color - page 290
• Height - page 242	• String Output - page 257	• Overall Opacity - page 287
• Above Popups - page 238	• Command Port - page 255	• Video Fill - page 291
• Touch Style - page 251	• Command Output - page 255	• Video Cropping - page 290

Button Properties - Multi-State General Buttons (Cont.)		
General Properties	Programming Properties	State Properties
• Border Style - page 240	***Note**: Maximum command, string and text length = 4096 characters.*	• Video Touch Pass-Thru - page 291
• State Count - page 250	***Note**: See the Level Control Parameters* section on page 284.	• Streaming Source - page 288
• Animate Time Up - page 240		• Bitmap - page 285
• Animate Time Down - page 239		• Bitmap Justification - page 285
• Disabled - page 241		• Bitmap X Offset - page 285
• Hidden - page 242		• Bitmap Y Offset - page 285
• Password Protection - page 247		• Scale Bitmap To Fit - page 288
• Page Flip Animation - page 247		• Icon Slot - page 286
• Animation Time - page 239		• Icon Justification - page 286
• Page Flip - page 247		• Icon X Offset - page 286
***Note**: The maximum number of states for Multi-State type buttons = 256.*		• Icon Y Offset - page 287
		• Font - page 286
		• Text - page 289
		• Text Justification - page 290
		• Text X Offset - page 290
		• Text Y Offset - page 290
		• Text Effect - page 290
		• Word Wrap - page 291
		• Sound - page 288

Bargraph Buttons

Bargraph buttons are level monitors and adjustable level controls that can be configured to monitor or adjust audio outputs and lighting levels.

FIG. 200 Example - Bargraph button

Creating Bargraph Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **Bargraph** as the *Type* property (FIG. 201).

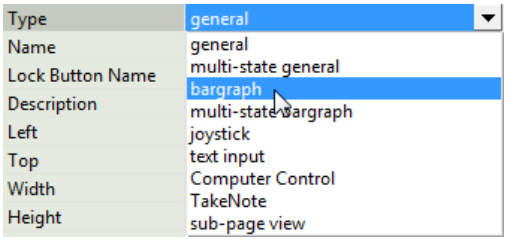


FIG. 201 Properties window (General tab) - Type Property (Bargraph)

This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window). See the *Setting Button Properties: Bargraph Buttons* section on page 144 for details.

5. Select **File** > **Save** to save your changes.

Setting Button Properties: Bargraph Buttons

Once you have created a *Bargraph* button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button. The following general button properties are supported for **Bargraph** buttons:

Button Properties - Bargraph Buttons		
General Properties	Programming Properties	State Properties
• Type - page 251	• Address Port - page 254	• Draw Order - page 286
• Name - page 246	• Address Code - page 254	• Border Name - page 285
• Lock Button Name -page 246	• Channel Port - page 254	• Chameleon Image - page 285
• Description - page 241	• Channel Code - page 254	• Border Color - page 285
• Left - page 243	• Level Port - page 256	• Fill Color - page 286
• Top - page 250	• Level Code - page 255	• Text Color - page 289
• Width - page 251	• Level Function - page 256	• Text Effect Color - page 290
• Height - page 242	• Range Low - page 256	• Overall Opacity - page 287
• Above Popups - page 238	• Range High - page 256	• Video Fill - page 291
• Touch Style - page 251	• Range Drag Increment - page 256	• Video Cropping - page 290
• Border Style - page 240	• Range Inverted - page 256	• Video Pass-Thru - page 291
• Disabled - page 241	• Range Time Up - page 257	• Streaming Source - page 288
• Hidden - page 242	• Range Time Down - page 257	• Bitmap - page 285
• Value Direction - page 251	• String Output Port - page 257	• Bitmap Justification - page 285
• Slider Name - page 249	• String Output - page 257	• Bitmap X Offset - page 285
• Slider Color - page 249	• Command Port - page 255	• Bitmap Y Offset - page 285
• Page Flip Animation - page 247	• Command Output - page 255	• Scale Bitmap To Fit - page 288
• Animation Time - page 239	***Note**: Maximum command, string and text length = 4096 characters.*	• Icon Slot - page 286
• Page Flip - page 247	***Note**: See the Level Control Parameters* section on page 284.	• Icon Justification - page 286
		• Icon X Offset - page 286
		• Icon Y Offset - page 287
		• Font - page 286
		• Text - page 289
		• Text Justification - page 290
		• Text X Offset - page 290
		• Text Y Offset - page 290
		• Text Effect - page 290
		• Word Wrap - page 291
		• Sound - page 288

Slider Types

There are several slider types available for use with Bargraph buttons, selectable via the *Slider Name* (General) property (FIG. 202):

FIG. 202 Properties window (General tab) - Type Property (Bargraph)

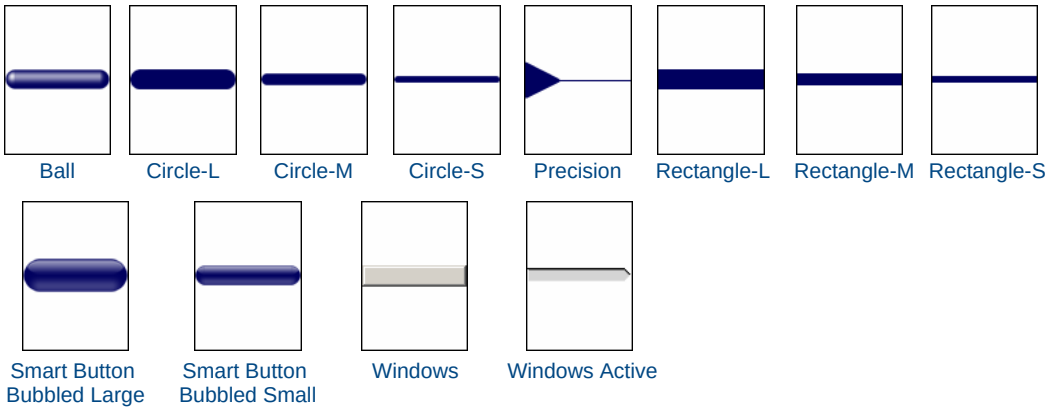


FIG. 203 Slider Types

- When using the circle, oval or diamond border types, you may notice the slider bar appearing partially outside of the button border. This is a result of scaling the button smaller than what the selected border requires to accommodate the slider bar. If you see this, try using a "smaller" border (i.e. try using "Circle 50" rather than "Circle 100"). Experiment with different border types to get the results you're after.
- Slider types are not available for Multi-State Bargraph buttons.

Formatting Codes

Formatting codes can be used in the Text for Bargraph and Multi-State Bargraph buttons. The following formatting codes will be replaced with the identified values:

- **$P** - level percentage
- **$V** - raw level value
- **$L** - range low
- **$H** - range high
- **$A** - adjusted level value (raw level value - range low)
- **$R** - range (range high - range low)
- **$$** - $ character

Multi-State Bargraph Buttons

Multi-State Bargraph buttons are level monitors and adjustable level controls that can be configured to monitor or adjust audio outputs and lighting levels, and that (like Multi-State General buttons) support up to 256 states.

Use multi-state buttons when you want to utilize animation effects. Multi-State Bargraph buttons also allow you to create a custom bargraph slider (using an image icon).

Creating Multi-State Bargraph Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **Multi-State Bargraph** as the *Type* property (FIG. 204).

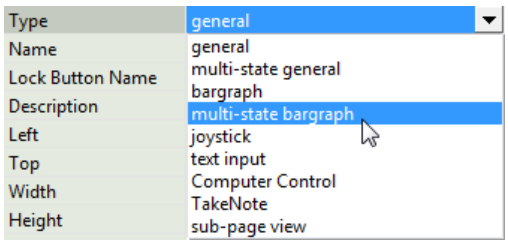


FIG. 204 Properties window (General tab) - Type Property (Multi-State Bargraph)

   This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.
4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window). See the *Setting Button Properties: Multi-State Bargraph Buttons* section on page 146 for details.
5. Select **File > Save** to save your changes.

Setting Button Properties: Multi-State Bargraph Buttons

Once you have created a *Bargraph* button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button.

The following general button properties are supported for **Multi-State Bargraph** buttons:

Button Properties - Multi-State Bargraph Buttons		
General Properties	Programming Properties	State Properties
• Type - page 251	• Address Port - page 254	• Draw Order - page 286
• Name - page 246	• Address Code - page 254	• Border Name - page 285
• Lock Button Name -page 246	• Channel Port - page 254	• Chameleon Image - page 285
• Description - page 241	• Channel Code - page 254	• Border Color - page 285
• Left - page 243	• Level Port - page 256	• Fill Color - page 286
• Top - page 250	• Level Code - page 255	• Text Color - page 289
• Width - page 251	• Level Function - page 256	• Text Effect Color - page 290
• Height - page 242	• Range Low - page 256	• Overall Opacity - page 287
• Above Popups - page 238	• Range High - page 256	• Video Fill - page 291
• Border Style - page 240	• Range Drag Increment - page 256	• Video Cropping - page 290
• State Count - page 250	• Range Inverted - page 256	• Video Pass-Thru - page 291
• Disabled - page 241	• Range Time Up - page 257	• Streaming Source - page 288
• Hidden - page 242	• Range Time Down - page 257	• Bitmap - page 285
• Value Direction - page 251	• String Output Port - page 257	• Bitmap Justification - page 285

Button Properties - Multi-State Bargraph Buttons (Cont.)		
General Properties	Programming Properties	State Properties
• Page Flip Animation - page 247	• String Output - page 257	• Bitmap X Offset - page 285
• Animation Time - page 239	• Command Port - page 255	• Bitmap Y Offset - page 285
• Page Flip - page 247	• Command Output - page 255	• Scale Bitmap To Fit - page 288
***Note**: The maximum number of states for Multi-State type buttons = 256.*	***Note**: Maximum command, string and text length = 4096 characters.* ***Note**: See the Level Control Parameters* section on page 284.	• Icon Slot - page 286 • Icon Justification - page 286 • Icon X Offset - page 286 • Icon Y Offset - page 287 • Font - page 286 • Text - page 289 • Text Justification - page 290 • Text X Offset - page 290 • Text Y Offset - page 290 • Text Effect - page 290 • Word Wrap - page 291 • Sound - page 288

Creating a Custom Slider

Multi-State Bargraph buttons work differently than regular Bargraph buttons. Note that when you draw a Multi-State Bargraph button, that there is no slider indicated on the button (in the Design View window).

Also note that unlike regular bargraph buttons, there are no slider-oriented settings to make in the Properties window. This is because multi-state bargraph buttons, like multi-state General buttons, use up to 255 states to animate the button action. In the case of Bargraph buttons, you'll be animating a change in levels as opposed to a push/release, as on Multi-State General buttons. Rather than assign a prepared slider, like you would for a normal Bargraph button, you can animate an icon across the states to serve as a custom slider.

Custom sliders on Multi-state Bargraph Buttons work on the panel basically the same as regular sliders. You adjust a level, you touch the bargraph button and move the slider up and down (or side to side on a horizontal Bargraph button).

To create a custom slider:

1. Create a Multi-State Bargraph button (FIG. 205):

FIG. 205 Multi-State Bargraph button

2. Select **State 1** in the *State Manager* window (FIG. 206):

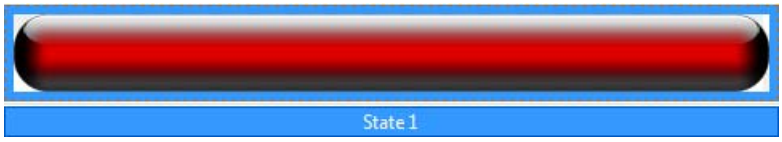


FIG. 206 Multi-State Bargraph button - State 1 selected (State Manager window)

3. Apply a Icon Slot assignment to **State 1** (FIG. 207):

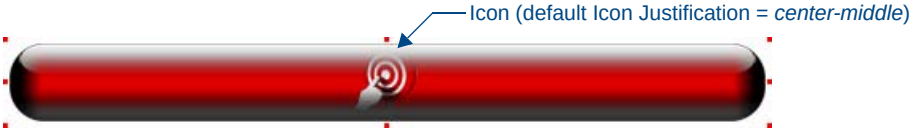


FIG. 207 Multi-State Bargraph button - Icon applied

4. Set the Icon Justification to *Absolute* (FIG. 208):

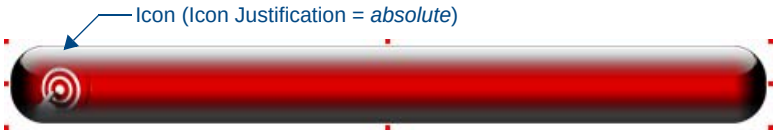


FIG. 208 Multi-State Bargraph button - Icon with Absolute Justification set

5. In the **Icon X Offset** state property, click the Browse button (...) to open the *Image and Text Positioning* dialog.
6. In the *Image and Text Positioning* dialog, move the icon into the position that you want to be the "start position" for the bargraph slider (FIG. 209):

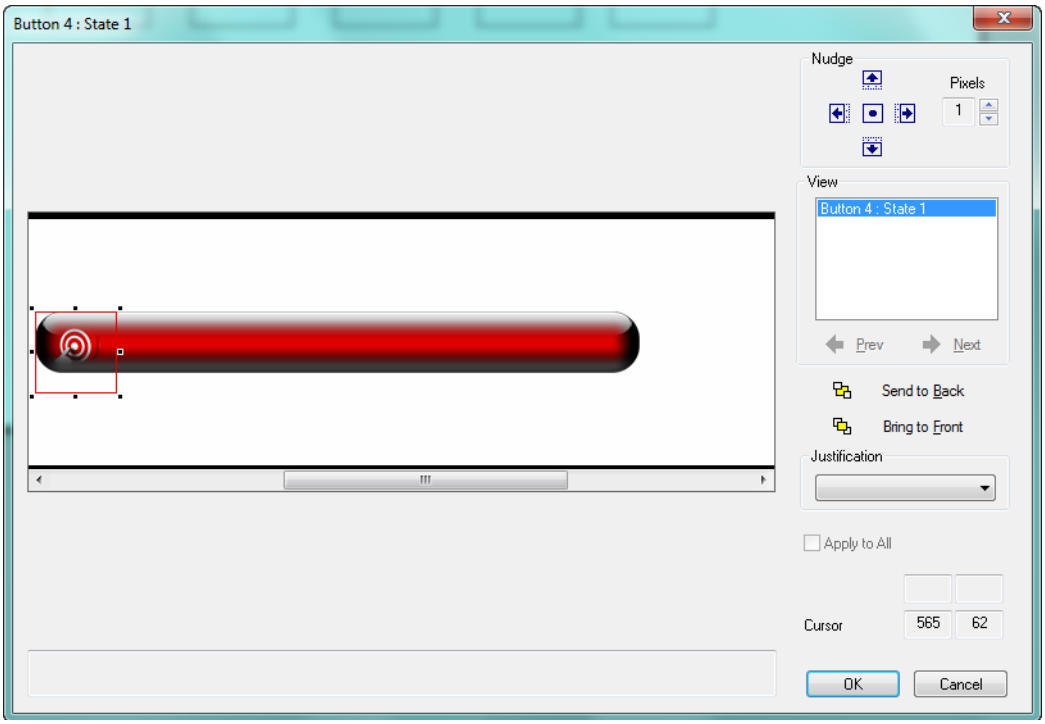


FIG. 209 Image and Text Positioning dialog - First State

The start (State 1) position for Multi-State Bargraph buttons is always the bottom or left side of the bargraph, depending on the Orientation setting (representing the minimum level setting).

7. Click **OK** to close the *Image and Text Positioning* dialog.
8. Select **Button > Insert States** to insert states to the button (up to 255 total), duplicating State 1 (containing the icon). In this example, 12 States were inserted, for a total of 13 states.

   Generally, you'll want to delete the "extra" state at the end of the sequence, which does not contain the icon (FIG. 210):

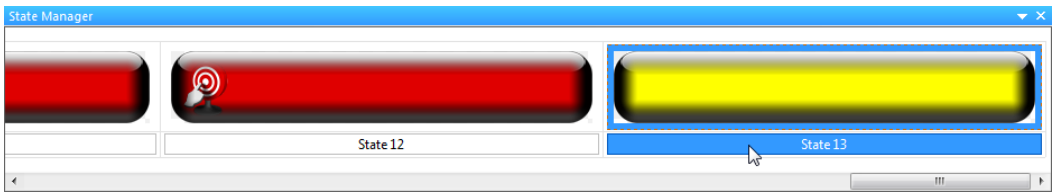


FIG. 210 State Manager window - delete the last State (the original State 2)

In this example, that leaves a total of 12 states.

NOTE

Keep in mind that the more states used to animate the movement of the icon, the smoother and more accurate the slider will be. The range of motion (i.e. the size of the button that the icon will travel across) needed for the slider should be taken in to consideration as well. A "short" bargraph button would require less states to create a smooth motion than a "long" one (that for example spans the entire touch panel page).

9. Select the last State in the Properties Window (*States* tab), or in the State Manager window (FIG. 211):

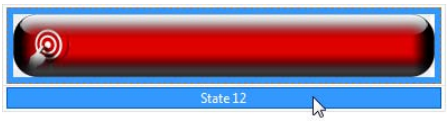


FIG. 211 Multi-State Bargraph button - Last State (State 12) selected (State Manager window)

10. In the *Image and Text Positioning* dialog, move the icon into the position that you want to be the "end position" for the bargraph slider (FIG. 212):

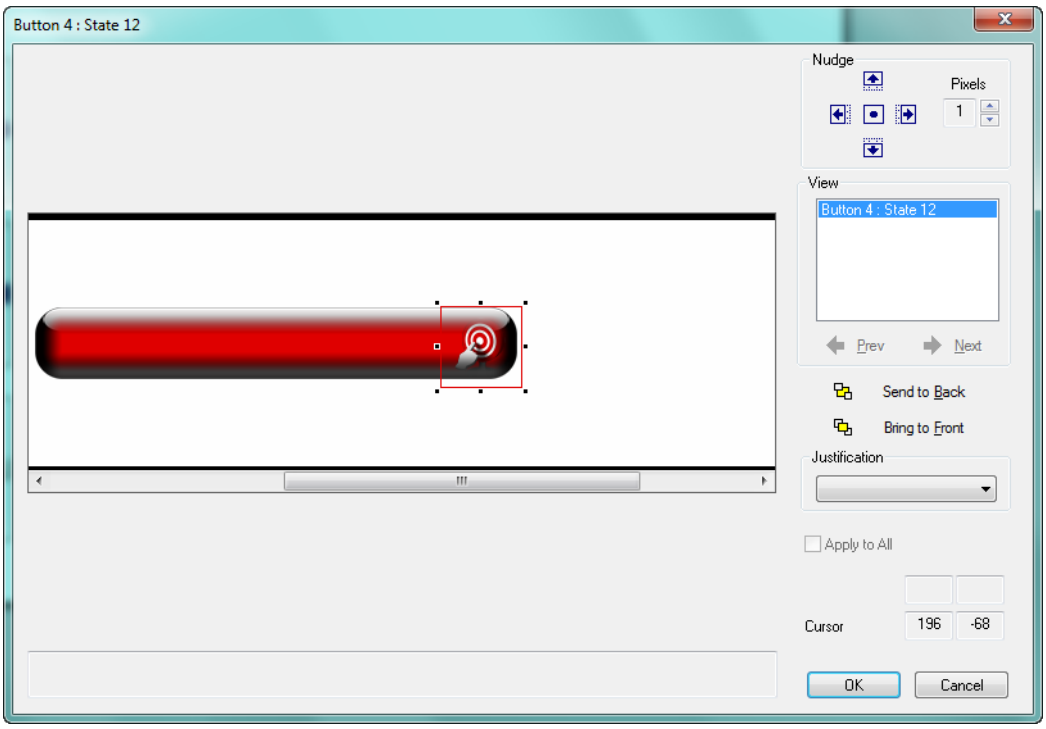


FIG. 212 Image and Text Positioning dialog - Last State

The end position for Multi-State Bargraph buttons is always the top or right-side of the bargraph, depending on the *Orientation* setting (representing the maximum level setting).

11. In the State Manager window, Ctrl+click to select just the first and last states.

12. Right-click on either of the selected states and select **Icon Position** from the *Tweeners* sub-menu (FIG. 213):

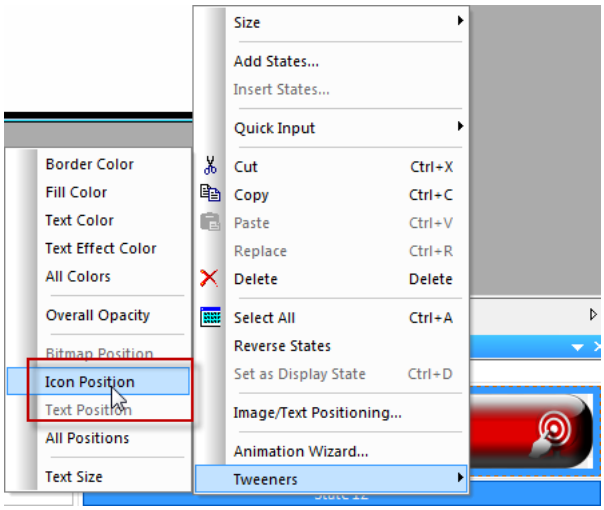


FIG. 213 Tweeners sub-menu - Icon Position selected

13. The results of the tweening are displayed in the State Manager window.

To preview the custom slider in action, open the Button Preview window, and click and drag the cursor up and down within the button to move the slider up and down (FIG. 214)

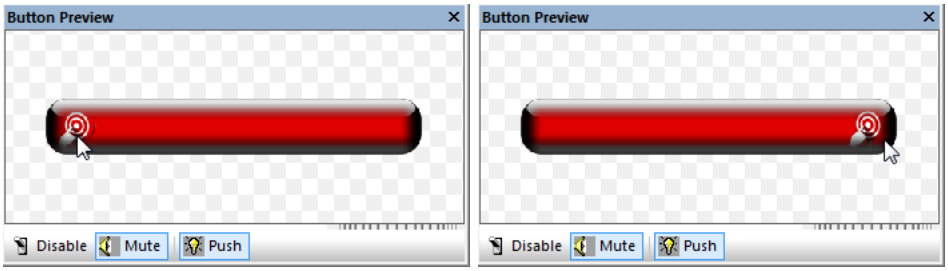


FIG. 214 Button Preview window

NOTE

Remember, you can also utilize the other tweeners in conjunction with the custom slider to create complex color transition effects. See the Animation Effects section on page 315 *for details.*

Working With Touch Maps

TPD4 supports *Touch Maps* for Multi-State Bargraph buttons. Touch Map images allow you to use irregular shapes for active bargraph buttons.

If you select **Touch Map** as the *Value Direction* (State property), an additional state property is enabled (displayed directly below the Value Direction property) called **Touch Map** (FIG. 215):

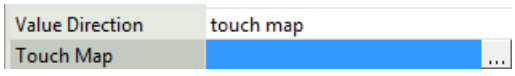


FIG. 215 Button Preview window

Click the browse button (...) next to **Touch Map** to select an image to use as a Touch Map (via the *Resource Manager)*.

The alpha values in the selected image represent the areas where touch will be registered, and the red-channel values represent the overall value to change the control to.

Joystick Buttons

Joystick buttons are vertical and horizontal direction controllers that can be used for pan and tilt control (typically for camera operation).

Joystick buttons only use one state: Off.

NOTE

Because Joystick buttons don't work in the same way as the other button types (in that they don't generate pushes/releases), there is no On state associated with them. Joystick buttons only use the Off state, as reflected in the State tab of the Properties window.

Creating Joystick Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **Joystick** as the Type property (FIG. 204).

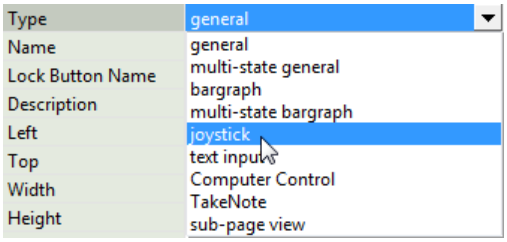


FIG. 216 Properties window (General tab) - Type Property (Joystick)

This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window). See the *Setting Button Properties: Joystick Buttons* section on page 151 for details.
5. Select **File > Save** to save your changes.

Setting Button Properties: Joystick Buttons

Once you have created a Joystick button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button.

The following general button properties are supported for **Joystick** buttons:

Button Properties - Joystick Buttons		
General Properties	Programming Properties	State Properties
• Type - page 251	• Address Port - page 254	• Draw Order - page 286
• Name - page 246	• Address Code - page 254	• Border Name - page 285
• Lock Button Name -page 246	• Channel Port - page 254	• Chameleon Image - page 285
• Description - page 241	• Channel Code - page 254	• Border Color - page 285
• Left - page 243	• Level Port - page 256	• Fill Color - page 286
• Top - page 250	• Level Code - page 255	• Text Color - page 289
• Width - page 251	• Level Aux - page 255	• Text Effect Color - page 290
• Height - page 242	• Level Function - page 256	• Overall Opacity - page 287
• Above Popups - page 238	• Range Low - page 256	• Video Fill - page 291
• Border Style - page 240	• Range High - page 256	• Video Cropping - page 290
• Disabled - page 241	• Range Drag Increment - page 256	• Video Pass-Thru - page 291

Button Properties - Joystick Buttons (Cont.)		
General Properties	Programming Properties	State Properties
• Hidden - page 242	• Range Inverted - page 256	• Streaming Source - page 288
• Cursor Name - page 241	• Range Aux Inverted	• Bitmap - page 285
• Cursor Color - page 241	• String Output Port - page 257	• Bitmap Justification - page 285
• Page Flip Animation - page 247	• String Output - page 257	• Bitmap X Offset - page 285
• Animation Time - page 239	• Command Port - page 255	• Bitmap Y Offset - page 285
• Page Flip - page 247	• Command Output - page 255	• Scale Bitmap To Fit - page 288
	***Note**: Maximum command, string and text length = 4096 characters.* ***Note**: See the Level Control Parameters* section on page 284.	• Icon Slot - page 286
		• Icon Justification - page 286
		• Icon X Offset - page 286
		• Icon Y Offset - page 287
		• Font - page 286
		• Text - page 289
		• Text Justification - page 290
		• Text X Offset - page 290
		• Text Y Offset - page 290
		• Text Effect - page 290
		• Word Wrap - page 291
		• Sound - page 288

Text Input Buttons

Text Input buttons are intended for user-input (using the on-screen keyboards) on the panel.

NOTE

Text Input buttons are not supported on R-4 remote controllers.

Creating Text Input Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **Text Input** as the *Type* property (FIG. 204).

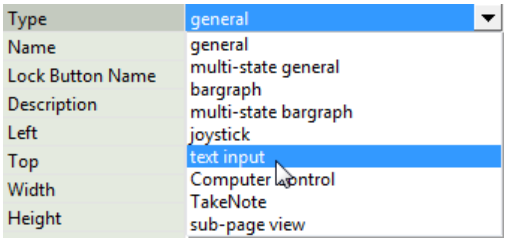


FIG. 217 Properties window (General tab) - Type Property (Text Input)

This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window). See the *Setting Button Properties: Text Input Buttons* section on page 153 for details.
5. Select **File > Save** to save your changes.

Setting Button Properties: Text Input Buttons

Once you have created a Text Input button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button. To edit any of the properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following button properties are supported for Text Input buttons:

Button Properties - Text Input Buttons		
General Properties	Programming Properties	State Properties
• Type - page 251	• Feedback - page 255	• Border Name - page 285
• Name - page 246	• Address Port - page 254	• Border Color - page 285
• Lock Button Name -page 246	• Address Code - page 254	• Fill Color - page 286
• Description - page 241	• Channel Port - page 254	• Text Color - page 289
• Left - page 243	• Channel Code - page 254	• Text Effect Color - page 290
• Top - page 250		• Overall Opacity - page 287
• Width - page 251		• Font - page 286
• Height - page 242		• Text - page 289
• Above Popups - page 238		• Text Effect - page 290
• Touch Style - page 251		
• Border Style - page 240		
• Disabled - page 241		
• Hidden - page 242		
• Password Character - page 247		
• Display Type - page 241		
• Max Text Length - page 246		
• Input Mask - page 243		
• Page Flip Animation - page 247		
• Animation Time - page 239		
• Page Flip - page 247		

Computer Control Buttons

Computer Control buttons provide a remote desktop to an attached PC running a VNC server, allowing you to control the PC via the Touch Panel interface (for remote control purposes (FIG. 218).

FIG. 218 Computer Control button

- Computer Control buttons are constrained to one of three predefined sizes (*640x480*, *800x600* or *1024x768*).
- Computer Control buttons support password protection separate from any additional username/password credentials that the user may require to access the remote system once the connection has been made.
- Computer Control buttons are not supported on R-4 remote controllers.

Creating Computer Control Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **Computer Control** as the *Type* property (FIG. 204).

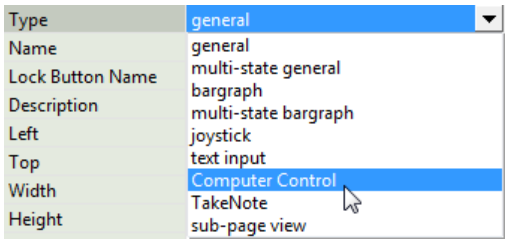


FIG. 219 Properties window (General tab) - Type Property (Computer Control)

This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

4. Edit the button's **General** properties as necessary (*General* tab of the Properties window).
5. In the *Programming* tab of the Properties window:
   a. To set properties for logging on/off, left, right, or double mouse clicks, etc., click *Channel Port* and select **0 - setup port**.
   b. Click the down arrow in the *Channel Code* row to access the Channel Codes menu, showing Basic Channel Codes (FIG. 220):

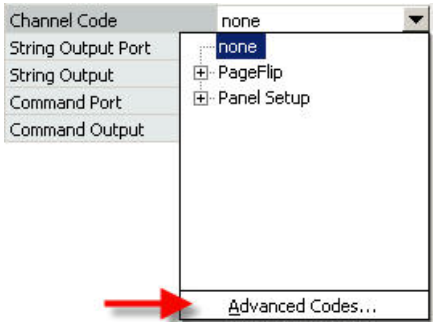


FIG. 220 Channel Code Property - Advanced Codes

   c. Click on *Advanced Codes* to show the Advanced Channel Code menu (click *Basic Codes* in this view to return to the Basic Codes menu (FIG. 221):

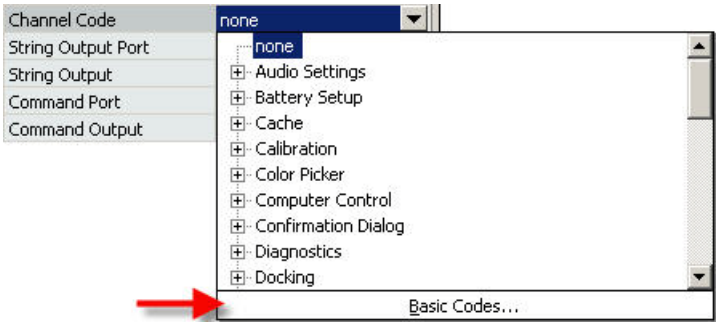


FIG. 221 Channel Code Property - Basic Codes

   d. Click **Computer Control** and the '+' sign out beside Computer Control to expand the Computer Control Basic Codes menu showing the available functions (FIG. 222):

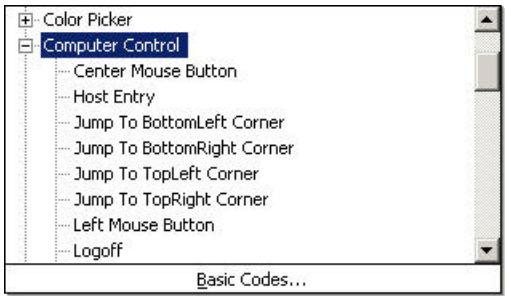


FIG. 222 Channel Code Property - Advanced Codes (Computer Control)

6. Edit the button's **Programming** properties as necessary (*Programming* tab of the Properties window).
7. Edit the button's **States** properties as necessary (*States* tab of the Properties window).
8. Select **File > Save** to save your changes.

Setting Button Properties: Computer Control Buttons

Once you have created a Computer Control button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button.

NOTE

*Computer Control buttons only use one state: **Off**.*

The following button properties are supported for **Computer Control** buttons:

Button Properties - Computer Control Buttons		
General Properties	Programming Properties	State Properties (OFF only)
• Type - page 251	• Address Port - page 254	• Draw Order - page 286
• Name - page 246	• Address Code - page 254	• Border Name - page 285
• Description - page 241	• Channel Port - page 254	• Chameleon Image - page 285
• Left - page 243	• Channel Code - page 254	• Border Color - page 285
• Top - page 250	• Level Control Type - page 256	• Fill Color - page 286
• Width - page 251	• String Output Port - page 257	• Text Color - page 289
• Height - page 242	• String Output - page 257	• Overall Opacity - page 287
• Above Popups - page 238	• Command Port - page 255	
• Disabled - page 241	• Command Output - page 255	
• Hidden - page 242	***Note**: Maximum command, string and text length = 4096 characters.*	
• Remote Host- page 247		
• Remote Port- page 247	***Note**: See the Level Control Parameters* section on page 284.	
• Password- page 247		
• Color Depth - page 240		
• Compression - page 241		
• Scale To Fit - page 248		
• TakeNote Enabled - page 250		
• TakeNote Port - page 250		

To access the advanced channel codes that can be used with Computer Control buttons:

1. Click on **Channel Port** (in the Programming tab of the Properties window) and select **0 - setup por**t.
2. Then, click on **Channel Code** to view the Basic Channel Codes.
3. Next, click on **Advanced Codes** to access the advanced channel codes representing advanced functions that can be assigned to the button.

TakeNote Buttons

TakeNote buttons work in conjunction with G4 Computer Control to provide a remote desktop to an attached PC running a VNC server, allowing you to use a G4 panel to annotate to either a windows desktop or on other G4 panels.

See *Appendix B: TakeNote* on page 375 for details.

NOTE

TakeNote buttons are not supported on R-4 remote controllers.

Creating TakeNote Buttons

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **TakeNote** as the *Type* property (FIG. 204).

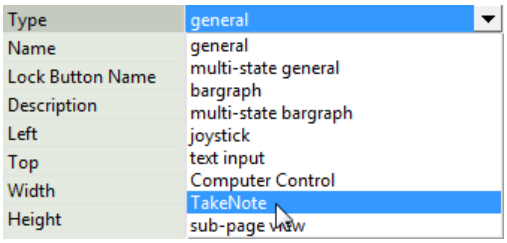


FIG. 223 Properties window (General tab) - Type Property (TakeNote)

This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window).

   See the *Setting Button Properties: TakeNote Buttons* section on page 156 for details.
5. Select **File** > **Save** to save your changes.

Setting Button Properties: TakeNote Buttons

Once you have created a TakeNote button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button. To edit any of the properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

NOTE

TakeNote buttons only use one state: Off.

The following button properties are supported for **TakeNote** buttons:

Button Properties - TakeNote Buttons		
General Properties	Programming Properties	State Properties (OFF only)
• Type - page 251	• Address Port - page 254	• Draw Order - page 286
• Name - page 246	• Address Code - page 254	• Border Name - page 285
• Lock Button Name	• Channel Port - page 254	• Border Color - page 285
• Description - page 241	• Channel Code - page 254	• Fill Color - page 286
• Left - page 243	• String Output Port - page 257	• Text Color - page 289

Button Properties - TakeNote Buttons (Cont.)		
General Properties	Programming Properties	State Properties (OFF only)
• Top - page 250	• String Output - page 257	• Text Effect Color - page 290
• Width - page 251	• Command Port - page 255	• Overall Opacity - page 287
• Height - page 242	• Command Output - page 255	• Bitmap - page 285
• Above Popups - page 238	***Note**: Maximum command, string and text length = 4096 characters.*	• Bitmap Justification - page 285
• Border Style- page 240		• Bitmap X Offset - page 285
• Disabled - page 241		• Bitmap Y Offset - page 285
• Hidden - page 242		• Scale Bitmap To Fit - page 288
• TakeNote Host - page 250		• Icon Slot - page 286
• TakeNote Port - page 250		• Icon Justification - page 286
		• Icon X Offset - page 286
		• Icon Y Offset - page 287
		• Font - page 286
		• Text - page 289
		• Text Justification - page 290
		• Text X Offset - page 290
		• Text Y Offset - page 290
		• Text Effect - page 290
		• Word Wrap - page 291
		• Marquee Direction - page 287
		• Marquee Repeat - page 287

Sub-Page View Buttons

Sub-Page View buttons are provided to support the Scrolling Regions feature (v3.2 or higher).

Scrolling Regions and related features (including Sub-Pages, Sub-Page Sets and Sub-Page View Buttons) are supported only by Modero X Series Touch Panels.
See the Scrolling Regions section on page 173 *for details.*

This Sub-Page View button type serves as a "container" for a set of Sub-Page Popup Pages called a Sub-Page Set.

The Sub-Page View button can be set to either Vertical or Horizontal orientation via (General) button properties. Sub-Page View buttons support several button properties that further define the behavior of the Scrolling Region, including Spacing, Anchor Position, Wrapping, etc.

The main functions of a Sub-Page View button are:

1. Establish the display order of the Sub-Pages contained in the Sub-Page Set associated with the Sub-Page View button.
2. Process the scrolling motion of the Sub-Pages displayed.
3. Clip the Sub-Pages as they move out of the boundaries of the Sub-Page View button.

Sub-Page View buttons are created like any other button, but use button properties that are specific to configuring a Scrolling Region (see the *Creating Sub-Page View Buttons* section on page 184 for details).

- Sub-Page Set
- Orientation
- Spacing (%)
- Anchor Position
- Wrap Sub-Pages
- Show Sub-Pages
- Allow Dynamic Reordering

Creating Sub-Page View Buttons

To create a new Sub-Page View button:

1. Open the Page or Popup page that the button will be added to (double-click on the page in the Workspace window (*Pages* tab) to open the page and bring it into edit focus).
2. Use the Button Draw tool to create a new button in the active Design View window.
   - See the *Drawing a Button* on page 123 for details.
3. In the *General* tab of the Properties window, select **Sub-Page View** as the *Type* property (FIG. 224).

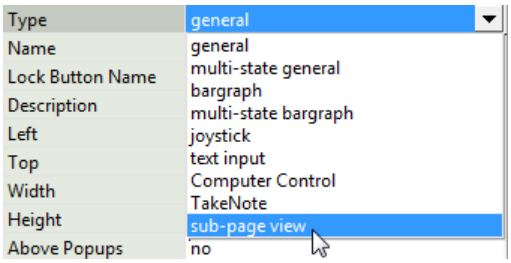


FIG. 224 Properties window (General tab) - Type Property (Sub-Page View)

This selection updates the Properties window, Design View window and State Manager window to represent the properties specific to this button type.

4. Edit the button's *General*, *Programming* and *States* properties as necessary (in the Properties window). See the *Setting Button Properties: Sub-Page View Buttons* section on page 158 for details.
5. Select **File > Save** to save your changes.

NOTE

See the Creating Sub-Page View Buttons section on page 184 *for details.*

Setting Button Properties: Sub-Page View Buttons

Once you have created a Sub-Page View button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button.

NOTE

Sub-Page View buttons only use one state: Off.

Refer to the *Setting Sub-Page View Button Properties* section on page 186 for details.

List Box Buttons

TPD4 supports adding "List Box" buttons to projects created from panel types that support List Box buttons. The List Box button is a special-purpose button type for G4 devices/panels which utilizes a collection of subordinate buttons to display either dynamic or static data as a scrollable list (referred to as a “list box view”).

List box buttons can be used to allow the end-user to view data in list form, and make selections from the list. The data displayed in List Box buttons comes from an associated List Data Table. List Box buttons are visible in TPD4, but do not have any visible properties on the panel.

The primary role of the (hidden) list box button is to retain the properties of the list box view. The role of the subordinate buttons is to display the data in the list box view.

Creating List Box Container Buttons

List Box buttons are not created like the other button types: List Box (Container) Buttons are created with the *List Box Draw Tool*. The *List Box Draw Tool* is one of the options in the Selection/Drawing Tools toolbar (FIG. 225):

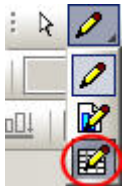


FIG. 225 List Box Draw Tool (Selection/Drawing Tools toolbar)

Use the List Box Button draw tool to draw list box buttons on the design view as you would any other button type. Refer to the *List Box Buttons* section on page 195 for details.

External Controls (Buttons/LEDs)

Overview

TPD4 supports editing the properties for programmable external controls for panels that feature external pushbuttons and LEDs (including R-4 remote controllers). You can edit external control properties on both a panel-wide basis and on a page specific button-by-button basis:

- **Global** (panel-wide) settings for external controls can be accessed and edited through the **External Controls** entry in the Pages tab of the Workspace Navigator Window (FIG. 226). Double-click this entry to access a Design View Window representing the size and placement of the external buttons and LEDs, which may be selected like any other button for editing.

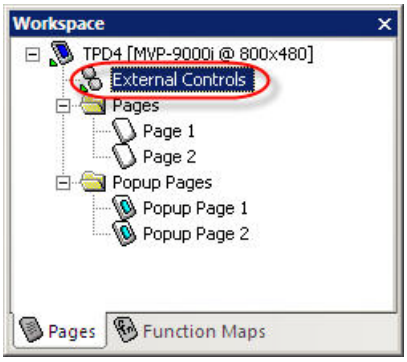


FIG. 226 Workspace Navigator Window (Pages tab) - External Controls

- **Page-specific** settings are accessed via each page's Design View. With a page active, select **Page > Show External Controls**, or click **Ctrl + B** (FIG. 227):

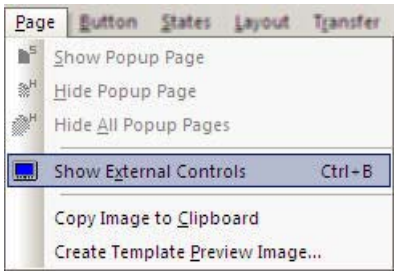


FIG. 227 Page Menu - Show External Controls

TPD4 supports copying and converting external controls between panels: When copying a page between panels, or when converting between panel types that both support external buttons, the configuration of the source external controls are copied to the destination controls according to the type of control (*general*, *LED*, *cursor up*, *cursor down*, *cursor left*, *cursor right*, or *cursor select)*.

External Button Options

The first dialog in the New Project Wizard includes an option for selecting *External Button Options*. This option allows you to select from multiple external button layouts.

The choices available depend on the type of panel selected in the *Panel Type* drop-down:

- If you have selected a panel without external pushbuttons, the External Button Options list is empty, i.e. "<none>".
- If you have selected any touch panel that is equipped with external pushbuttons, the only available option is "
- ***Default Configuration***" (and cannot be changed).
- If you have selected the MIO R-4 remote, the options include:
  - **Default Configuration** - for use with a standard MIO R-4.

- **Keypad with Transport Functions** - for use with a MIO R-4 with transport keys.
- **Teletext keypad** - for use with a Teletext MIO R-4.
- **Teletext Keypad with Transport Functions** - for use with a Teletext MIO R-4 with transport keys.

As with the panel resolution, this selection cannot be modified once the panel project has been created.

Copying/Converting External Controls Between Panels

TPD4 supports copying and converting the properties for programmable external controls (external pushbuttons and LEDs).

- The global, panel-wide settings for external controls can be accessed and edited through the **External Controls** entry in the Pages tab of the Workspace Navigator Window. Double-click this entry to access a Design View Window representing the size and placement of the external buttons and LEDs, which may be selected like any other button for editing.
- Page specific external controls settings are accessed via each page's Design View (with the **Page > Show External Controls** option enabled).

When copying a page between panels, or when converting between panel types that both support external buttons, the configuration of the source panel's external controls are copied to the destination panel's controls according to the type of control (*general*, *LED*, *cursor up*, *cursor down*, *cursor left*, *cursor right*, or *cursor select*.

Setting Global Properties for External Controls

TPD4 allows you to set Global or Page-Specific properties for external controls (for projects targeted at panel types that have external buttons/LEDs).

- Global settings are panel-wide settings that apply to the external controls, regardless of the page currently showing on the panel.
- Page-specific properties are external control properties that change according to the specific page showing on the panel. See Setting Page-Specific Properties for External Controls for details.

Global (panel-wide) settings for external controls are accessed through the **External Controls** entry in the panel's tree displayed in the Pages tab of the Workspace Navigator Window (see FIG. 226 on page 161):

Double-click on the **External Controls** entry to display a Design View Window representing the layout of the external controls on the target panel, which may be selected like any other button to edit their properties.

Note that are no State properties to configure for external controls.

Setting Global General Properties: External Pushbuttons

Global (panel-wide) settings for external controls (pushbuttons and LEDs) are accessed through the **External Controls** entry in the panel's tree (displayed in the Pages tab of the Workspace Navigator Window).

1. Double-click on the **External Controls** entry to display the External Controls View for the target panel.
2. Use the Selection Tool to pick the external control that you want to configure (in the Design View Window).
3. Once you have selected an external button, you can use the General tab of the Properties window to set/edit general external control properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following global, general button properties are supported for external pushbuttons (some options are only available for specific devices, based on it's functionality):

- Name
- Disabled
- Password Protection
- Flyout Text
- Page Flip Animation

- Animation Time (tenths/sec)
- Page Flip

Setting Global Programming Properties: External Pushbuttons

Global (panel-wide) settings for external controls (pushbuttons and LEDs) are accessed through the **External Controls** entry in the panel's tree (displayed in the Pages tab of the Workspace Navigator Window).

1. Double-click on the **External Buttons** entry to display a Design View Window representing the layout of the external buttons on the target panel, which may be selected like any other button to edit their properties.

Use the Selection Tool to pick the external control that you want to configure (in the Design View Window).

Once you have selected an external control, you can use the Programming tab of the Properties window to set/edit programming-oriented button properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following global programming properties are supported for external pushbuttons:

- Address Port
- Address Code
- Channel Port
- Channel Code
- Level Control Type
- String Output Port
- String Output
- Command Port
- Command Output

Maximum command, string and text length = 4096 characters.

Setting Global Properties for External LEDs

TPD4 allows you to set Global or Page-Specific properties for external controls (for projects targeted at panel types that have external pushbuttons and LEDs). Global settings are panel-wide settings that apply to the external controls regardless of the page currently showing on the panel. Page-specific properties are external control properties that change according to the specific page showing on the panel.

Global (panel-wide) settings for external controls are accessed through the **External Controls** entry in the panel's tree (displayed in the Pages tab of the Workspace Navigator Window).

Double-click on the **External Controls** entry to display a Design View Window representing the layout of the external controls (buttons and LEDs) on the target panel, which may be selected like any other button to edit their properties.

Note that are no State properties to configure for external controls.

Setting Global General Properties: External LEDs

Global (panel-wide) settings for external LEDs are accessed through the **External Controls** entry in the panel's tree (displayed in the Pages tab of the Workspace Navigator Window).

1. Double-click on the **External Controls** entry to display a Design View Window representing the layout of the external controls (buttons and LEDs) on the target panel, which may be selected like any other button to edit their properties.
2. Use the Selection Tool to pick the external LED or group of LEDs that you want to configure (in the Design View Window).
3. Once you have selected an external LED, you can use the General tab of the Properties window to set/edit general external control properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following general properties are supported for External LEDs:

- Name
- Disabled

Setting Global Programming Properties: External LEDs

Global (panel-wide) settings for external LEDs are accessed through the **External Controls** entry in the panel's tree (displayed in the Pages tab of the Workspace Navigator Window).

1. Double-click on the **External Buttons** entry to display a Design View Window representing the layout of the external buttons and LEDs on the target panel, which may be selected like any other button to edit their properties.
2. Use the Selection Tool to pick the LED (or group of LEDs) that you want to configure (in the Design View Window).
3. Once you have selected an LED, you can use the Programming tab of the Properties window to set/edit programming-oriented LED properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following programming properties are supported for External LEDs:

- Feedback
- Address Port
- Address Code
- Channel Port
- Channel Code

Setting Page-Specific Properties for External Controls

TPD4 allows you to set Global or Page-Specific properties for external controls (for projects targeted at panel types that have external buttons/LEDs).

- Global settings are panel-wide settings that apply to the external controls, regardless of the page currently showing on the panel. See Setting Global Properties for External Pushbuttons for details.
- Page-specific properties are external control properties that change according to the specific page showing on the panel.

Page-specific settings are accessed via each page's Design View. With a page active, select **Page > Show External Controls** or click **Ctrl + B** (see FIG. 227 on page 161).

To override the global property settings for an external control on a specific page:

1. Open a page (in a Design View Window).
2. Select **Page > Show External Controls** (or click the toolbar button) to display a graphical representation of the panel around the page indicating the layout of the external controls for the target panel type.
3. Use the selection tool to select an external control for editing (via the
4. *General* and *Programming* tabs of the Properties Control Window.

Note that are no State properties to configure for external controls.

Setting Page-Specific General Properties: External Pushbuttons

Page-specific settings for external controls (pushbuttons and associated LEDs) which may override any Global settings are set via the Design View of the page that you want to associate the external controls with.

1. Double-click on a **Page** entry (in the Pages tab of the Workspace Navigator Window) to display the selected page in a Design View Window.
2. Select **Pages > Show External Controls** to change the Design View to represent the layout of the external buttons on the target panel.
3. Use the Selection Tool to pick the external control that you want to configure (in the Design View Window).
4. Once you have selected an external control, you can use the General tab of the Properties window to set/edit general button properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following page-specific, general button properties are supported for external pushbuttons:

- Override Global Settings
- Name
- Disabled
- Password Protection
- Page Flip Animation
- Animation Time (tenths/sec)
- Page Flip

Setting Page-Specific Programming Properties: External Pushbuttons

Page-specific settings for external controls (pushbuttons and associated LEDs) which may override any Global settings are set via the Design View of the page that you want to associate the external controls with.

1. Double-click on a **Page** entry (in the Pages tab of the Workspace Navigator Window) to display the selected page in a Design View Window.
2. Select **Pages > Show External Controls** to change the Design View to represent the layout of the external controls on the target panel.
3. Use the Selection Tool to pick the external control that you want to configure (in the Design View Window).
4. Once you have selected an external control, you can use the Programming tab of the Properties window to set/edit general button properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following page-specific programming properties are supported for external pushbuttons:

- Address Port
- Address Code
- Channel Port
- Channel Code
- Level Control Type
- String Output Port
- String Output
- Command Port
- Command Output

Maximum command, string and text length = 4096 characters.

Setting Page-Specific General Properties: External LEDs

Page-specific settings for external controls (pushbuttons and associated LEDs) which may override any Global settings are set via the Design View of the page that you want to associate the external controls with.

1. Double-click on a **Page** entry (in the Pages tab of the Workspace Navigator Window) to display the selected page in a Design View Window.
2. Select **Pages > Show External Controls** to change the Design View to represent the layout of the external buttons and LEDs on the target panel.
3. Use the Selection Tool to pick the LED (or group of LEDs) that you want to configure (in the Design View Window).
4. Once you have selected an LED, you can use the General tab of the Properties window to set/edit general LED properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following general properties are supported for external LEDs:

- Override Global Settings
- Name

- Disabled

Setting Page-Specific Programming Properties: External LEDs

Page-specific settings for external LEDs are accessed through the new **External Controls** entry in the panel's tree (displayed in the Pages tab of the Workspace Navigator Window).

1. Double-click on the **External Buttons** entry to display a Design View Window representing the layout of the external buttons and LEDs on the target panel, which may be selected like any other button to edit their properties.
2. Use the Selection Tool to pick the LED (or group of LEDs) that you want to configure (in the Design View Window).
3. Once you have selected an LED, you can use the Programming tab of the Properties window to set/edit programming-oriented LED properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following programming properties are supported for external LEDs:

- Feedback
- Address Port
- Address Code
- Channel Port
- Channel Code

Gesture Controls

Overview

The MX Series panels as well as the MVP-9000i panel support Gestures for on-screen navigation. Gestures can be used (in addition to buttons) to define Page Flips for navigating the panel UI.

Gestures represent a way to define functionality (in addition to Buttons and External Controls) in a way that adds navigation options of the panel UI that go beyond pressing buttons on the screen. For example, use a "Swipe" gesture to invoke a page flip when the user swipes a finger across the screen.

Gestures are presented in TPDesign4 as a set of *Gesture Control* buttons displayed across the top of the page on the External Controls view for the panel.

For example, the Gesture Control buttons for the MXT-2000XL-PAN are shown below (FIG. 228):

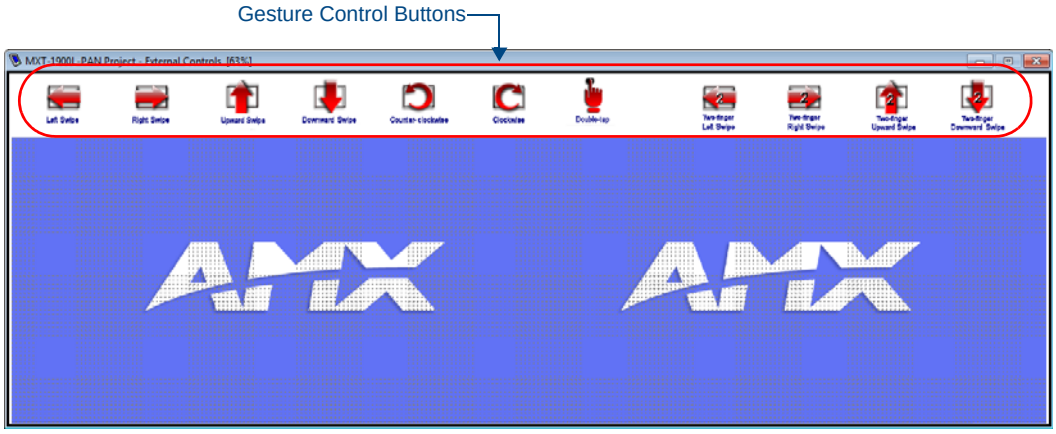


FIG. 228 Gesture Control Buttons - MXT-2000XL-PAN

Gesture Control buttons allow you to specify button properties to Gestures in a way that is similar to that of setting properties for other button types: select a Gesture Control button in the Design View window, and set the *General* and *Programming* properties in the Properties window.

- Note that Gesture Control buttons do not have State properties, since they are single-state "buttons".
- Also note that the General and Programming Properties available for each Gesture Control button are identical - they all use the same set of Button Properties.

TPDesign4 (v3.2 or higher) supports Single-Finger and Two-Finger Gestures. Note that depending on the capabilities of the selected panel type, some or all of these Gesture Control buttons may be presented:

Single-Finger Gestures (MVP-9000i and MX Series Panels):

FIG. 229 Single-Finger Gesture Control Buttons

Two-Finger Gestures (MX Series Panels Only)

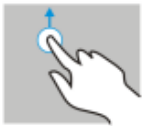
FIG. 230 Two-Finger Gesture Control Buttons

In the Design View window, Gesture Control buttons may be selected like any other button for editing (FIG. 231):

FIG. 231 Gesture Control button selected for editing

Single-Finger Gestures

Supported Single-Finger Gestures include:

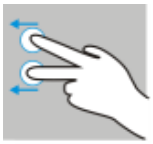
Single-Finger Gestures		
	Left Swipe	A swipe across the touch panel in the left direction causes a Page Flip (as defined in the Properties window - General tab).
	Right Swipe	A swipe across the touch panel in the right direction causes a Page Flip (as defined in the Properties window - General tab).
	Upward Swipe	An upward swipe across the touch panel causes a Page Flip (as defined in the Properties window - General tab).
	Downward Swipe	A downward swipe across the touch panel causes a Page Flip (as defined in the Properties window - General tab).
	Clockwise	A clockwise swipe across the touch panel causes a Page Flip (as defined in the Properties window - General tab).
	Counter-Clockwise	A counter-clockwise swipe across the touch panel causes a Page Flip (as defined in the Properties window - General tab).
	Double-Tap	A double-tap on the touch panel causes a Page Flip (as defined in the Properties window - General tab).

Using Single-Finger Gestures

1. Place one finger on the panel.
2. Swipe (slide) the finger left or right for horizontal navigation
3. *(Left, Right Swipes*), up or down for vertical navigation (*Two-finger Upward, Two-Finger Downward Swipes*), in a circular motion (Clockwise and Counterclockwise).
4. The Gesture ends when the finger is lifted from panel.

Two-Finger Gestures

Supported Two-Finger Gestures include:

Two-Finger Gestures		
	Two-Finger Left Swipe	A two-finger swipe across the touch panel in the left direction causes a Page Flip (as defined in the Properties window - General tab).
	Two-Finger Right Swipe	A two-finger swipe across the touch panel in the right direction causes a Page Flip (as defined in the Properties window - General tab).
	Two-Finger Upward Swipe	An two-finger upward swipe across the touch panel causes a Page Flip (as defined in the Properties window - General tab).
	Two-Finger Downward Swipe	A two-finger downward swipe across the touch panel causes a Page Flip (as defined in the Properties window - General tab).

Using Two-Finger Gestures

1. Place two fingers slightly separated on the panel.
2. Swipe (slide) both fingers in unison left or right for horizontal navigation
3. *(Two-finger Left, Two-Finger Right Swipes*), or up or down for vertical navigation (*Two-finger Upward, Two-Finger Downward Swipes*).
4. The Gesture ends when both fingers are lifted from panel.

Setting Properties for Gesture Controls

Gesture Control buttons allow you to specify button properties to Gestures in a way that is similar to that of setting properties for other button types: select a Gesture Control button in the Design View window, and set the General and Programming properties in the Properties window.

Gesture Control Properties can be set at either a Global Level, or at a Page-Specific Level:

- See the *Accessing Global Properties for Gesture Controls* section on page 170
- See the *Accessing Page-Specific Properties for Gesture Controls* section on page 170.

Note that Gesture Control buttons do not have State properties, since they are single-state "buttons".

Also note that the General and Programming Properties available for each Gesture Control button are identical - they all use the same set of Button Properties.

Accessing Global Properties for Gesture Controls

Global (panel-wide) settings for Gesture Controls are accessed and edited through the **External Controls** entry in the *Pages* tab of the Workspace Window (FIG. 232):

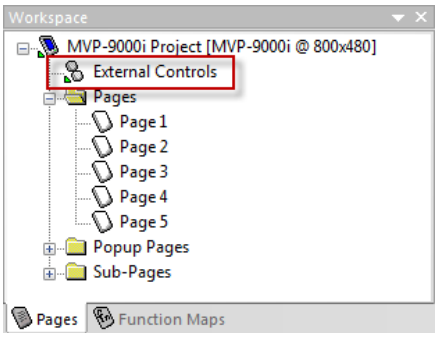


FIG. 232 Workspace Window (Pages tab) - External Controls

Double-click this entry to access a Design View window representing the size and placement of the external buttons and LEDs, as well as the supported Gesture Controls, which may be selected like any other button for editing.

When accessed through the Workspace window, the Properties presented in the Properties window for the selected Gesture Control button represent Global (panel-wide) properties.

Any changes made to the Gesture Control properties at this level are global changes that will affect the behavior of the Gesture Controls, regardless of which page is currently active.

See the *Accessing Global Properties for Gesture Controls* section (below) for details.

Accessing Page-Specific Properties for Gesture Controls

Page-Specific settings for Gesture Controls are accessed and edited via the **Show External Controls** option in the *Page* menu (FIG. 233):

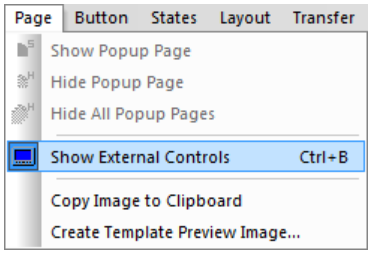


FIG. 233 Page Menu - Show External Controls

With a Page selected in the Workspace window (Pages tab), select *Page > Show External Controls* (or click the toolbar button, or click Ctrl+B) to access a Design View window representing the size and placement of the external buttons and LEDs, as well as the supported Gesture Controls, which may be selected like any other button for editing.

When accessed through the Page menu, the Properties presented in the Properties window for the selected Gesture Control button represent Page-Specific properties (specific to the currently active Page). Any changes made to the Gesture Control properties at this level will only affect the behavior of the Gesture Controls for the active Page.

See the *Accessing Page-Specific Properties for Gesture Controls* section on page 170 for details.

NOTE

The External Controls view also provides access to External Control buttons (if supported by the target Touch Panel). External Control buttons are treated basically like Gesture Control buttons - they are selectable and are configured via the Properties window.

Gestures - General Properties

- **Override Global Settings** - This option is only available when editing Page-Specific Gesture properties. Click in this row to enable the drop-down menu (*Yes* / *No*).

  Select *Yes* to override the default global settings for the selected Gesture.

  By default, this option is set to *No*, in which case none of the properties for the selected Gesture are editable. See the *Setting Global Properties for External Controls* section on page 162 for details.

  When *Yes* is selected, all fields in the General and Programming tabs of the Properties Window are editable.
- Name - page 246
- Disabled - page 241
- Password Protection - page 247
- Page Flip Animation - page 247
- Animation Time (tenths/sec) - page 239
- Page Flip - page 247

Gestures - Programming Properties

- Address Port - page 254
- Address Code - page 254
- Channel Port - page 254
- Channel Code - page 254
- Level Control Type - page 256
- String Output Port - page 257
- String Output - page 257
- Command Port - page 255
- Command Output - page 255

Note that Gestures do not support State properties or Feedback.

Scrolling Regions

Overview

Scrolling Regions represent a powerful new method of presenting functions on AMX Modero X Series Touch Panels. A Scrolling Region is a specific area on a touch panel page that contains a set of elements that scroll as a group.

The illustration in FIG. 234 below shows a basic example of a touch panel page with two Scrolling Regions - one vertical and one horizontal. The red borders represent the boundaries of the Scrolling Regions, and the items labelled "*SubPage <x>*" scroll within the boundaries of the Scrolling Region (either vertically or horizontally). End-users use swipes to scroll through the items in the Scrolling Region.

- All of the items within the Scrolling Region move as a group.
- Each item within the Scrolling Region can be pressed like traditional buttons

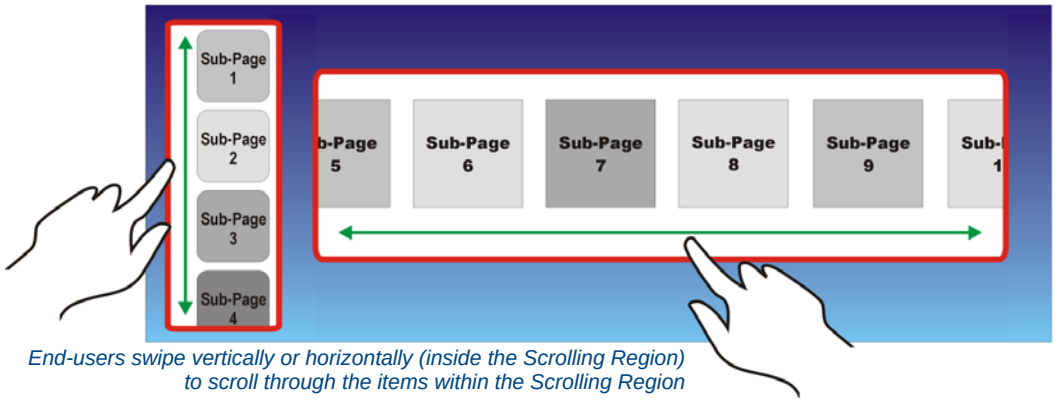


FIG. 234 Example of Scrolling Regions on a Touch Panel Page

Scrolling Regions require three elements, all of which are new concepts in TPDesign4 (v3.2):

- **Sub-Pages** - these are the items that are displayed within the Scrolling Region (see page 175)
- **Sub-Page Sets** - a grouped set of Sub-Pages (see page 179)
- **Sub-Page View Buttons** - a container button that defines the size and shape of the Scrolling Region (see page 183)

Scrolling Regions present a set of **Sub-Pages** called a **Sub-Page Set** that scroll as a group within a container button called a **Sub-Page View button** (FIG. 235).

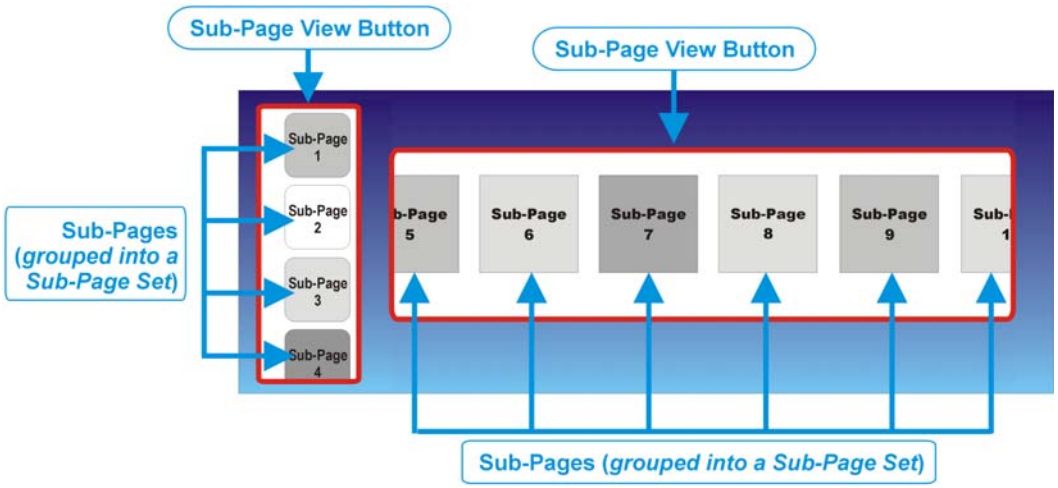


FIG. 235 Basic Elements of Scrolling Regions

Since the touch panels that support Scrolling Regions also support Gestures at the page level, it is important to understand that finger gestures used on the page are separate from the swipes used within Scrolling Regions.

For example, if a page uses a swipe gesture to trigger a Page Flip, the page flip will only occur if the swipe gesture is used on the Page, and not within a Scrolling Region (FIG. 236):

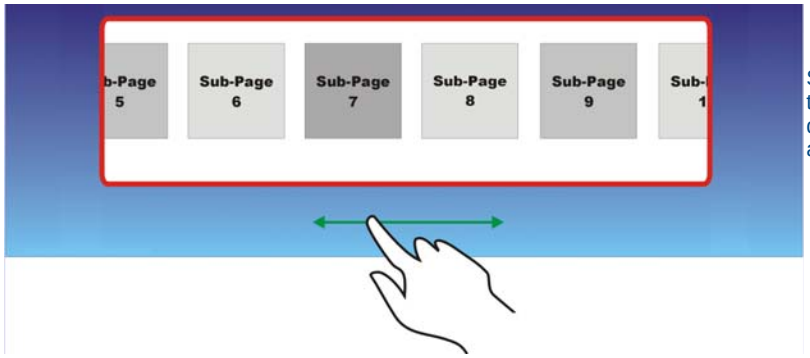

Sub-Page 5
Sub-Page 6
Sub-Page 7
Sub-Page 8
Sub-Page 9
Swipe gestures made on the Page (outside of a defined Scrolling Region) affect the Page.

FIG. 236 Example: Swipe Gesture applied to the Page triggers a Page Flip

When the User swipes (or selects) within a Scrolling Region, it only affects the Scrolling Region (FIG. 237):

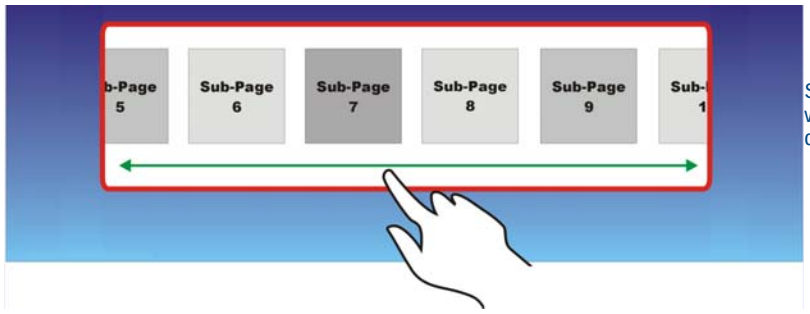


FIG. 237 Example: Swipe within the Scrolling Region

See the *Gesture Controls* section on page 167 for details on using gestures outside of Scrolling Regions.

Creating a Scrolling Region - Overview

The basic process of creating a Scrolling Region involves three basic steps (each described in the following sub-sections). Technically, these steps can be performed in any order. However there are fundamental dependencies between the three basic elements that comprise a Scrolling Region (*Sub-Page View Button*, *Sub-Page Set* and *Sub-Pages*) that must be understood before starting:

- A Sub-Page View Button can only be used as a container for a Sub-Page Set. Therefore it makes sense to define a Sub-Page Set before creating the Sub-Page View button, so that there is a Sub-Page Set available to associate to the Sub-Page View Button once it is created.
- In order to create a Sub-Page Set, two or more Sub-Pages must be available in the project to add to the set. Therefore, it is necessary to define the Sub-Pages that will be grouped into a set before a Sub-Page Set can be defined.

If a series of Sub-Pages are created as the first step, they can be grouped into a Sub-Page Set as the second step, and applied to a Sub-Page View button as the final step. The instructions for creating a Scrolling Region are presented in the following order to follow these basic dependencies:

1. **Create Sub-Pages**
2. **Create a Sub-Page Set**
3. **Create a Sub-Page View Button**

Depending on the context of your work, you may find it advantageous to create a Sub-View Button first to define the visual boundaries of the Scrolling Region, then define the Sub-Pages that will be displayed as a Sub-Page Set within the Sub-Page View button. Again, these steps can be performed in any order.

See the *Creating a Scrolling Region - Example* section on page 188.

Sub-Pages

A *Sub-Page* is a specific type of Popup Page that is used to represent an individual item within a Scrolling Region. Each item displayed with a Scrolling Region is a separate Sub-Page (FIG. 238):

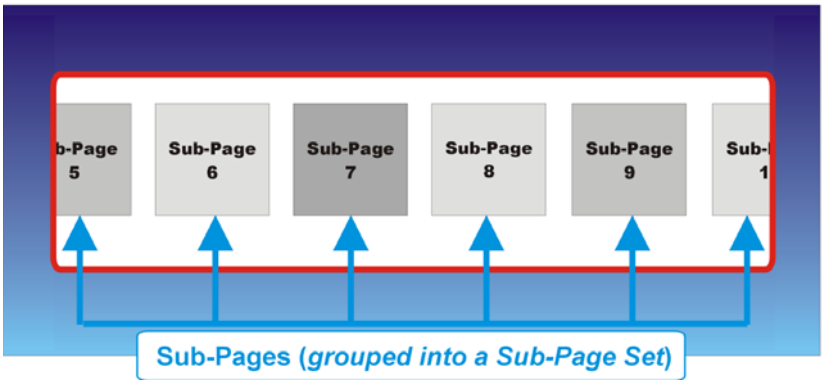


FIG. 238 Sub-Pages

NOTE

Sub-Pages must be grouped into a Sub-Page Set in order to be displayed in a Scrolling Region. See the Sub-Page Sets section on page 179 *for details.*

Sub-Pages are represented in the Workspace Window (Pages tab) within the *Sub-Pages* folder (FIG. 239):

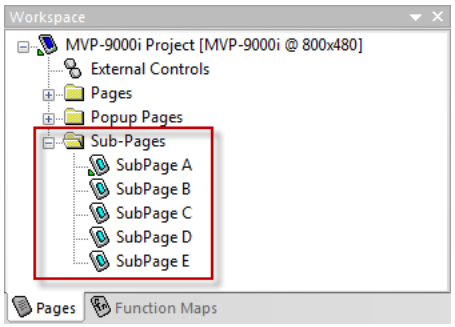


FIG. 239 Workspace Window (Pages tab) - Sub-Pages folder

Sub-Pages are created in the same way as Standard Popup Pages (either via the Popup Draw Tool, or via the *Add Popup Page* dialog) - see the *Creating a Sub-Page* section on page 176 for details.

Sub-Pages are differentiated from *Standard* Popups via the *Popup Type* (General) property for Popup Pages.

- Sub-Pages can only be displayed within a Sub-Page View button, as members of a *Sub-Page Set. Sub-Page Sets* are used to define an ordered group of Sub-Pages. Sub-Pages must be added to a *Sub-Page Set* to be displayed in a Sub-Page View button. See the *Sub-Page Sets* section on page 179 for details.
- Unlike Standard Popup Pages, Sub-Pages do not appear in Page Flip lists.
- Unlike Standard Popup Pages, Sub-Pages do not have Top, Left, or Group properties, since their position within the Sub-Page View button is determined by button properties set for the Sub-Page View button. See the *Setting Sub-Page View Button Properties* section on page 186 for details.
- The Address Port and Address Code assignments for Sub-Pages are provided only for use in SEND-COMMANDS (not to trigger actions).
- Unlike Standard Popup Pages, Sub-Pages do not utilize Channel Port/Code addresses.

NOTE

TPD4 will convert any Sub-Pages to Standard Popups on a Save As Different Panel Type operation from a panel that supports the sub-page view feature to a legacy panel-type that doesn't.

Creating a Sub-Page

There are two ways to add a new Sub-Page to your Project:

Via the *Add Popup Page* Dialog

1. Select **Panel > Add Popup Page** (or click the toolbar icon) to open the *Add Popup Page* dialog (alternatively, select *Add Popup Page* from the Workspace Context Menu).
2. Set the **Type** option to *Sub-Page* (FIG. 240).

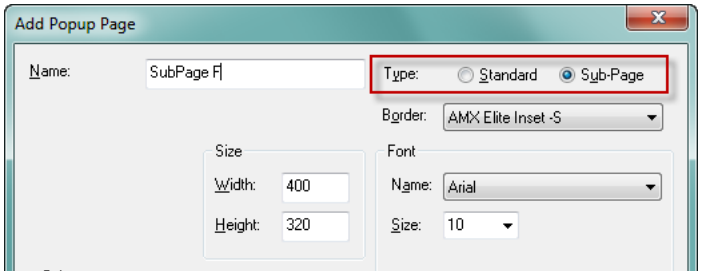


FIG. 240 Add Popup Page dialog - Sub-Page Selected for Type

3. Fill in the information in this dialog to specify the basic properties for the new Sub-Page.
4. Click **OK** to add the new Sub-Page to the project.
   The new Sub-Page is added to the *Sub-Pages* folder, in the Workspace Navigator (FIG. 241):

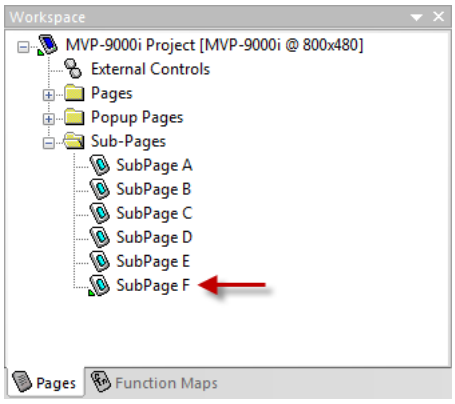


FIG. 241 Workspace Navigator - Sub-Pages folder

5. Set the Sub-Page properties as desired (FIG. 242):

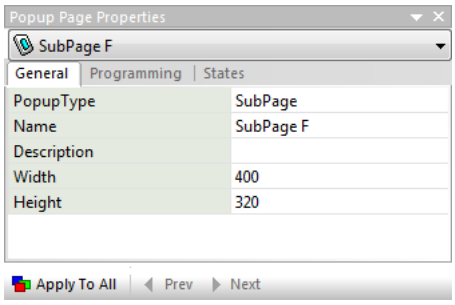


FIG. 242 Properties window (General tab) - Sub-Page Selected

6. Select **File > Save** to save your changes.

Via the Popup Draw Tool

TPD4 also features the Popup Draw tool, which allows you to quickly create new popup pages in a way that is similar to drawing new buttons.

1. Select **Edit > Popup Draw Tool** (or click the toolbar button) to activate the Popup Draw tool.

   To access the Popup Draw toolbar button, click and hold the Button Draw tool (in the Selection/Drawing Tools toolbar) for one second to open the drop-down menu containing the Popup Draw tool (FIG. 243).

FIG. 243 Selection/Drawing Tools toolbar - Popup Draw Tool

2. Left-click inside the desired page (in the active Design View window), and while holding the left mouse button down, drag to draw the popup page to the desired size and shape.

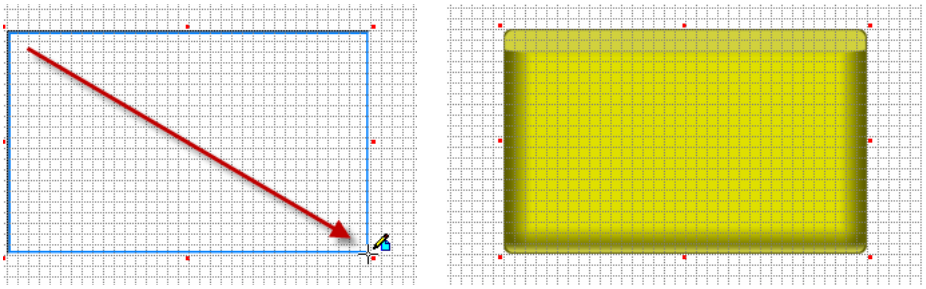


FIG. 244 Drawing a Popup Page

The minimum popup page size is 15 pixels in height or width.

3. In the Properties window (*General* tab), verify that the **PopupType** property is set to *Sub-Page* (FIG. 245).

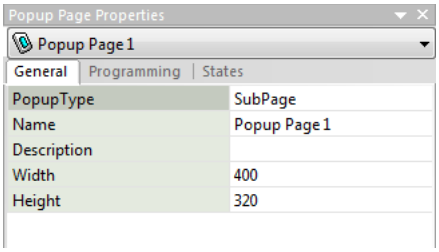


FIG. 245 Properties window (General tab) - Popup Type set to Sub-Page

4. Set the other properties as desired - see the *Setting Sub-Page Properties* section on page 178 for details.
5. Select **File > Save** to save your changes.

Setting Sub-Page Properties

Sub-Pages have a set of Page Properties that can be configured via the fields in the Properties Window.

To set Sub-Page properties, click on the Sub-Page area in the Design View (as opposed to a button on the page). With the Sub-Page selected, the Properties window displays the properties available for the Sub-Page, separated into three tabs: *General*, *Programming* and *States*.

Edit any of the listed properties by clicking on an item in the right-side column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

Setting General Properties: Sub-Pages

The *General* tab of the Properties window contains a table that lists general properties for the active Sub-Page:

General Properties: Sub-Pages	
Popup Type	See page 247
Name	See page 246
Description	See page 241
Width	See page 251
Height	See page 242

Setting Programming Properties: Sub-Pages

The *Programming* tab contains a table that lists program-related properties (Address assignments) for the active Sub-Page:

Programming Properties: Sub-Pages	
Address Port	See page 254
Address Code	See page 254

- The combination of Address Port and Address Code must be unique.
- The Address Port and Code assignments for *Sub-Pages* are provided only for use in SEND-COMMANDS (not to trigger actions).
- Unlike Standard Popup Pages, *Sub-Pages* do not utilize Channel Port/Code addresses.

Setting States Properties: Sub-Pages

Use the *States* tab of the Properties window to set/edit state properties for the active Sub-Page. Note that Sub-Pages have only one State (*Off*):

States Properties: Sub-Pages			
Draw Order	See page 286	Icon Slot	See page 286
Border Name	See page 285	Icon Justification	See page 286
Border Color	See page 285	Icon X Offset	See page 286
Fill Color	See page 286	Icon Y Offset	See page 287
Text Color	See page 289	Font	See page 286
Text Effect Color	See page 290	Text	See page 289
Overall Opacity	See page 287	Text Justification	See page 290
Video Fill	See page 291	Text X Offset	See page 290
Streaming Source	See page 288	Text Y Offset	See page 290
Bitmap	See page 285	Text Effect	See page 290
Bitmap Justification	See page 285	Word Wrap	See page 291
Bitmap X Offset	See page 285	Sound	See page 288
Bitmap Y Offset	See page 285		

Sub-Page Sets

A *Sub-Page Set* represents an ordered list of Sub-Pages that are to be displayed within a Sub-Page View button, to create a Scrolling Region (FIG. 246).

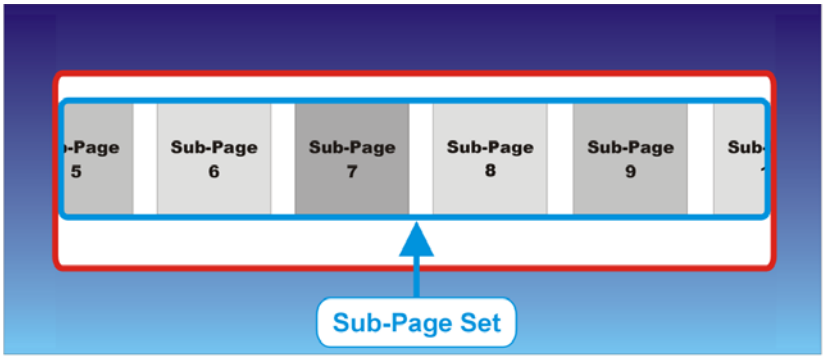


FIG. 246 Sub-Page Set

Sub-Pages must be assigned to a Sub-Page Set to be used in a Scrolling Region.

A Sub-Page Set defines the following:

- The name of the Sub-Page Set
- A listing of Sub-Pages to be included in the set
- The order in which they will be displayed within the Scrolling Region
- The size (dimensions) at which each Sub-Page will be displayed within the Scrolling Region (based on the overall dimensions of the first Sub-Page in the set - see the *Sub-Page Sets - Slot Sizes* section on page 182 for details).

Sub-Page Sets are created in the *Create Sub-Page Set* dialog and edited via the *Edit Sub-Page Sets* dialog. See the *Creating Sub-Page Sets* section (below) for details.

- A panel project must contain at least one Sub-Page Set to implement the scrolling region feature.
- Note that the size of all Sub-Pages in a Sub-Page Set is determined by the first Sub-Page in the set. See the *Sub-Page Sets - Slot Sizes* section on page 182 for details.

Creating Sub-Page Sets

The options in the *Edit Sub-Page Sets* dialog allow you to create new Sub-Page Sets (FIG. 247):

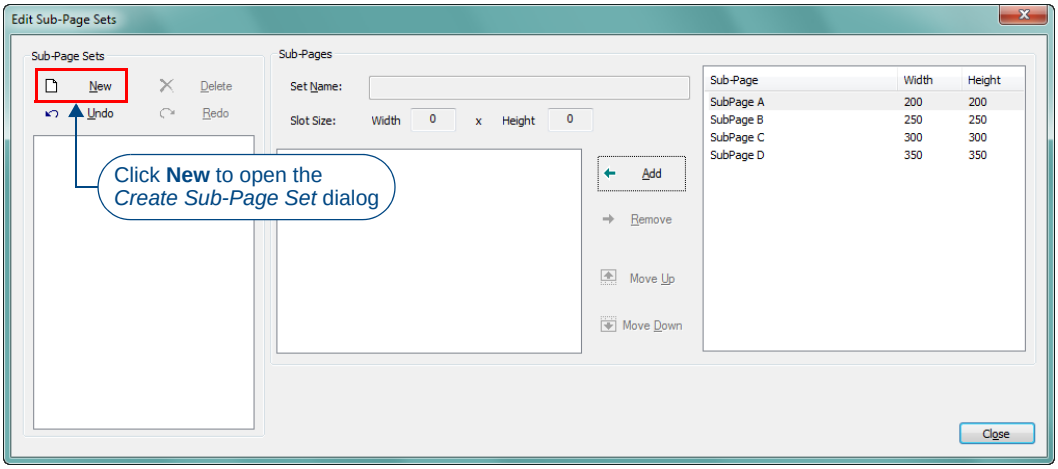


FIG. 247 Edit Sub-Page Sets dialog

1. Select **Panel > Edit Sub-Page Sets** to open the *Edit Sub-Page Sets* dialog.
2. Click **New** to open the *Create Sub-Page Set* dialog (FIG. 248).

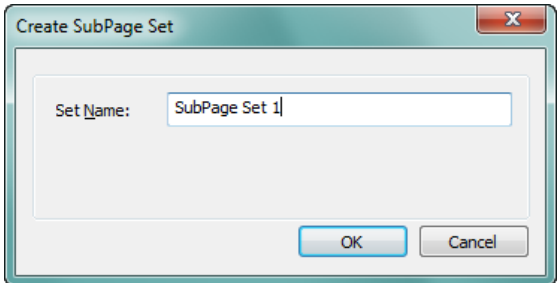


FIG. 248 Create Sub-Page Set dialog

3. Enter a unique name for the new Sub-Page Set in the **Set Name** field.
4. Click **OK** to save your changes and close the *Create Sub-Page Set* dialog, and return to the *Edit Sub-Page Sets* dialog. The new Sub-Page Set is indicated in the Sub-Page Sets list on the left-side of the dialog (FIG. 249):

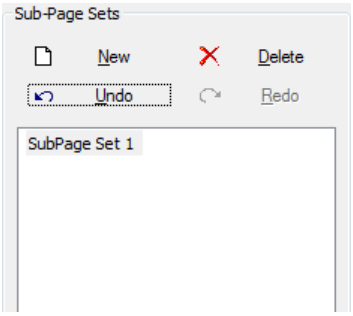


FIG. 249 Edit Sub-Page Sets dialog - "Sub-Page Set 1" added to the Sub-Page Sets list

5. Add Sub-Pages to the new Sub-Page Set:
   a. Select a Sub-Page from the Sub-Pages list on the right-side of the dialog (FIG. 250).

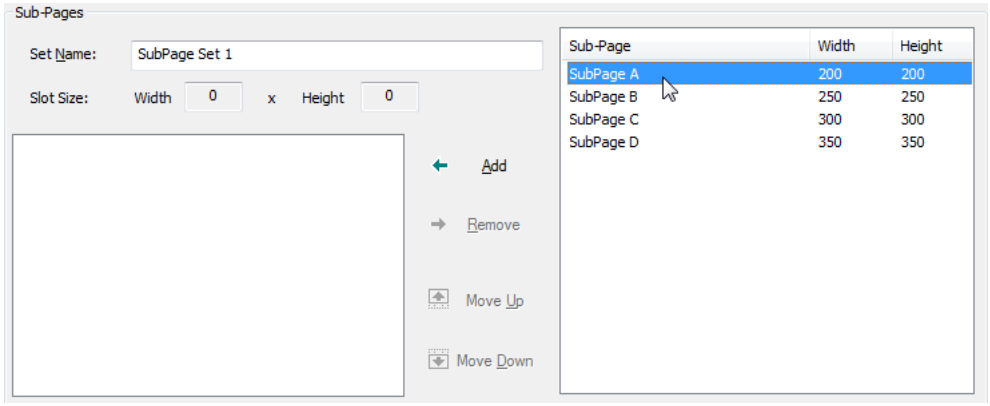


FIG. 250 Select a Sub-Page from the Sub-Pages list

   b. Click **Add** (or double-click the Sub-Page) to add it to the selected Sub-Page Set list, in the center window (FIG. 251):

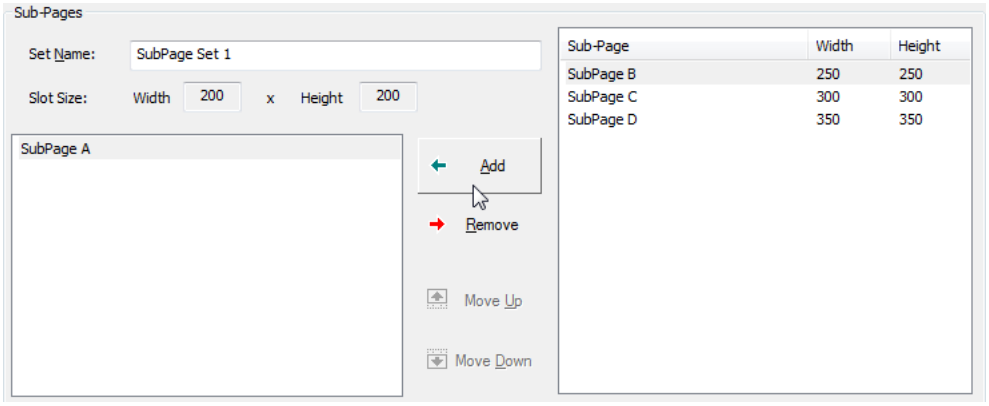


FIG. 251 "Sub-Page A" added to the Sub-Page Set list for "Sub-Page Set 1"

c. Repeat this process to add other Sub-Pages to the selected Sub-Page Set (FIG. 252):

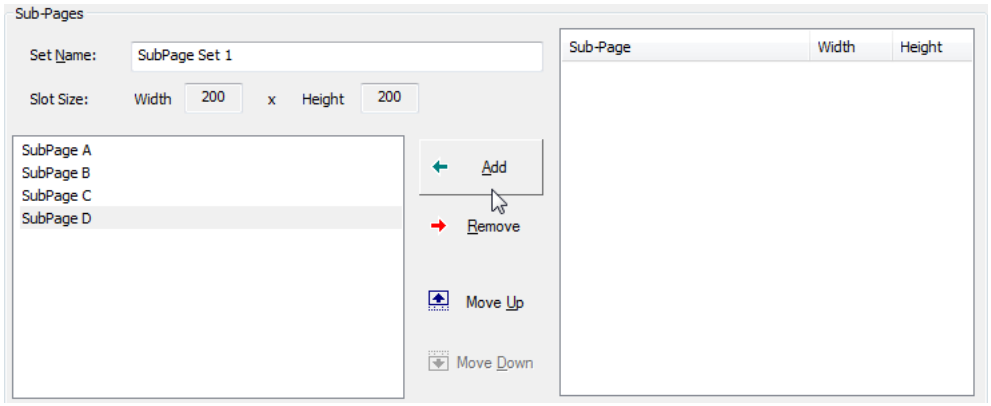


FIG. 252 Sub-Pages "A-D" added to "Sub-Page Set 1"

NOTE

Sub-Pages can be added to multiple Sub-Page Sets. However, only one instance of a Sub-Page can be added to any Sub-Page Set. Also, only one instance of any Sub-Page can only be displayed on a touch panel page at a time (as is the case with Standard Popup Pages).

6. Specify the order that the Sub-Pages will display via the **Move Up** and **Move Down** buttons.

Note that the dimensions of all of the Sub-Pages in the Set are determined by the dimensions of the first Sub-Page in the list. See the *Sub-Page Sets - Slot Sizes* section on page 182 for details.

7. Click **Close** to save your changes and close the *Edit Sub-Page Sets* dialog.

At this point, the new Sub-Page Set has been added to the active project. Once a Sub-Page Set has been saved, it is available for selection via the *Sub-Page Set* (General) button property for Sub-Page View buttons (FIG. 253):

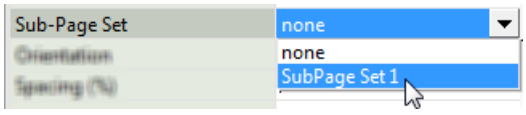


FIG. 253 "Sub-Page Set 1" in the Sub-Page Set button property drop-down

- See the *Setting Sub-Page View Button Properties* section on page 186 for details.
- An entry for the new Sub-Page Set will be added to the *Sub-Page Sets* list (on the left side of the *Edit Sub-Page Sets* dialog).

Sub-Page Sets - Slot Sizes

The **Slot Size** fields (*Width* and *Height*) in the *Edit Sub-Page Sets* dialog are automatically populated with the Slot Size for the selected Sub-Page Set (in pixels). These values are based on the dimensions of the first Sub-Page in the list. This is to ensure that all Sub-Pages with a scrolling region are of a consistent size.

For example, consider a list of four Sub-Pages, each with different dimensions (FIG. 254):

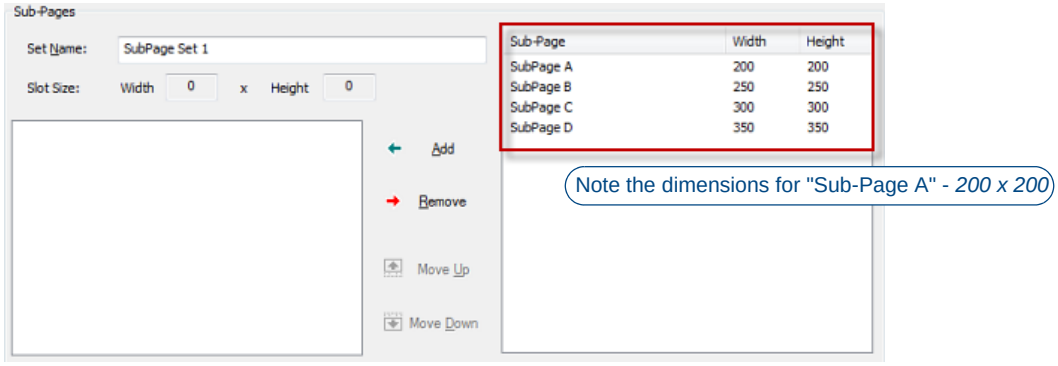


FIG. 254 Sub-Pages A-D each have different dimensions

When we add all four to "Sub-Page Set 1" with "Sub-Page A" in the first position, the Slot Size fields indicate **200 x 200**, the dimensions of "Sub-Page A" (FIG. 255):

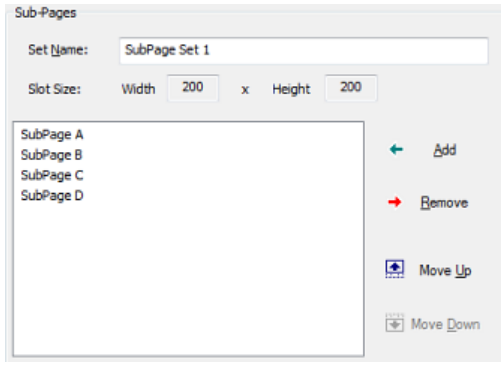


FIG. 255 "Sub-Page Set 1" with "Sub-Page A" in the first position

Note that since the following Sub-Pages are of larger dimensions that Sub-Page A, they will be cropped to match the 200 x 200 dimension. Ideally, Sub-Pages that will be grouped into a Sub-Page Set should be designed with this in mind.

If we select "Sub-Page D" (the dimensions of which are **350 x 350** as indicted in FIG. 254), and move it to the first position (via the *Move Up* button), the Slot Size fields change to reflect it's dimensions (FIG. 256):

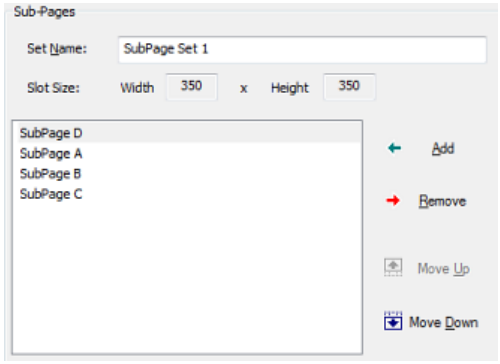


FIG. 256 "Sub-Page Set 1" with "Sub-Page A" in the first position

In this case, the Sub-Pages following "Sub-Page D" in the list are smaller in size, and will therefore have the appropriate amount of empty space added to them to make them match the 350 x 350 dimension.

Again, try to keep these factors in mind as you design scrolling regions.

Editing Sub-Page Sets

The options in the *Edit Sub-Page Sets* dialog allow you to edit existing Sub-Page Sets.

1. Select **Panel > Edit Sub-Page Sets** to open the *Edit Sub-Page Sets* dialog (FIG. 247 on page 179).
2. Select a Sub-Page Set in the *Sub-Page Sets* list box (left list box).
3. Edit the *Set Name* as desired.
4. Use the *Add* and *Remove* buttons to add or remove Sub-Pages from the list.
5. Use the *Move Up* and *Move Down* buttons to reorder the Sub-Pages in the list.
6. Click *Close* to save your changes and close the *Edit Sub-Page Sets* dialog.

Deleting Sub-Page Sets

The options in the Edit Sub-Page Sets dialog allow you to delete existing Sub-Page Sets.

1. Select **Panel > Edit Sub-Page Sets** to open the *Edit Sub-Page Sets* dialog.
2. Select a Sub-Page Set in the *Sub-Page Sets* list box (left list box).
3. Click **Delete**.
4. Click **Close** to save your changes and close the *Edit Sub-Page Sets* dialog.

Sub-Page View Buttons

The *Sub-Page View* button type serves as a "container" for the Sub-Pages, and defines the area of the scrolling region (FIG. 257):

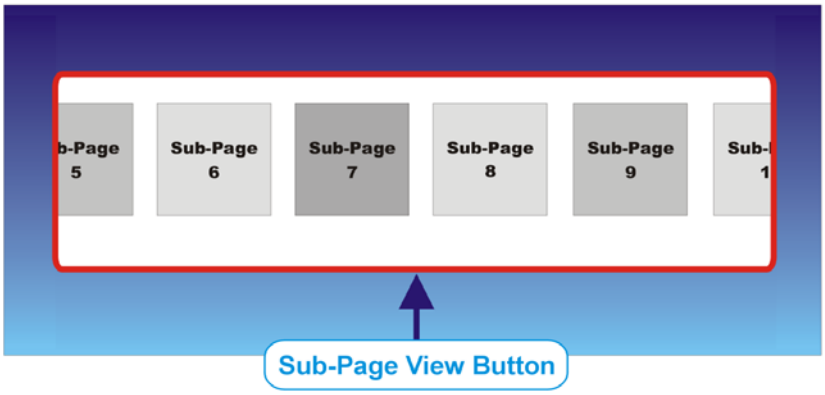


FIG. 257 Sub-Page View Button

The main functions of a Sub-Page View button are to:

1. Establish the display order of the Sub-Pages contained in the Sub-Page Set associated with the Sub-Page View button.
2. Process the scrolling motion of the Sub-Pages displayed.
3. Clip the Sub-Pages as they move out of the boundaries of the Sub-Page View button.

   Note that *Sub-Page 4* in FIG. 257 is shown to be clipped as it leaves the right-side boundary of the Sub-Page View button.

Sub-Page View buttons are created like any other button, but utilize button properties that are specific to configuring a scrolling region. Properties are set for Sub-Page View buttons via the Properties window, just like other button types.

- The orientation of the scrolling region is set via the *Orientation* (General) button property.
- The spacing between each of the Sub-Pages is defined via the *Spacing (%)* button property.
- Other properties specific to Sub-Page View buttons include *Anchor Position*, *Wrapping*, *Allow Dynamic Reordering* and *Reset View on Show*. See the *Setting Sub-Page View Button Properties* section on page 186 for details.

Sub-Page View Buttons - Design View

Sub-Page View buttons are displayed in the Design View with placeholders that indicate the relative positions of the Sub-Page Set that it contains, to represent the Size, Placement, Spacing and Anchor Position options currently assigned to the Sub-Page Set.

FIG. 258 shows an example of a Sub-Page View button in the Design View - the Sub-Page Placeholders indicate that five Sub-Pages will be visible within the Sub-Page View Button:

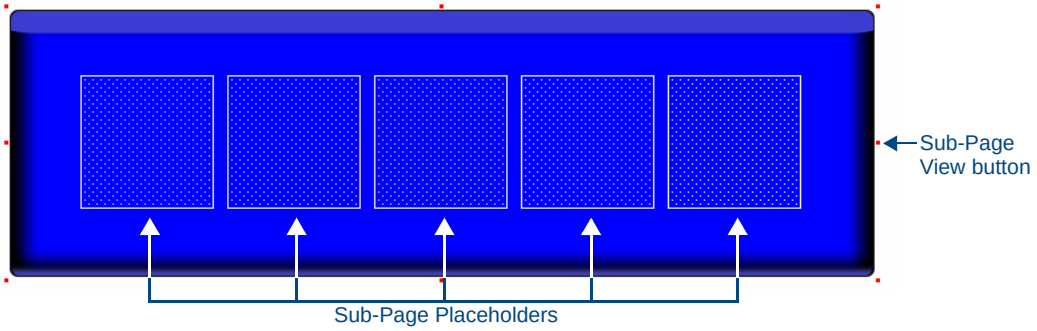


FIG. 258 Sub-Page View button in the Design View

FIG. 258 shows a Sub-Page View button that has been assigned a Sub-Page Set containing five Sub-Pages. The Sub-Pages have been centered (via the *Anchor Position* property), and have a small amount of spacing applied (via the *Spacing* property).

These placeholders provide a preview of how the Sub-Pages will appear on the touch panel page. Use them to quickly visualize how changes made to various Sub-Page View button properties will affect the arrangement of Sub-Pages within a Sub-Page View button (FIG. 259):

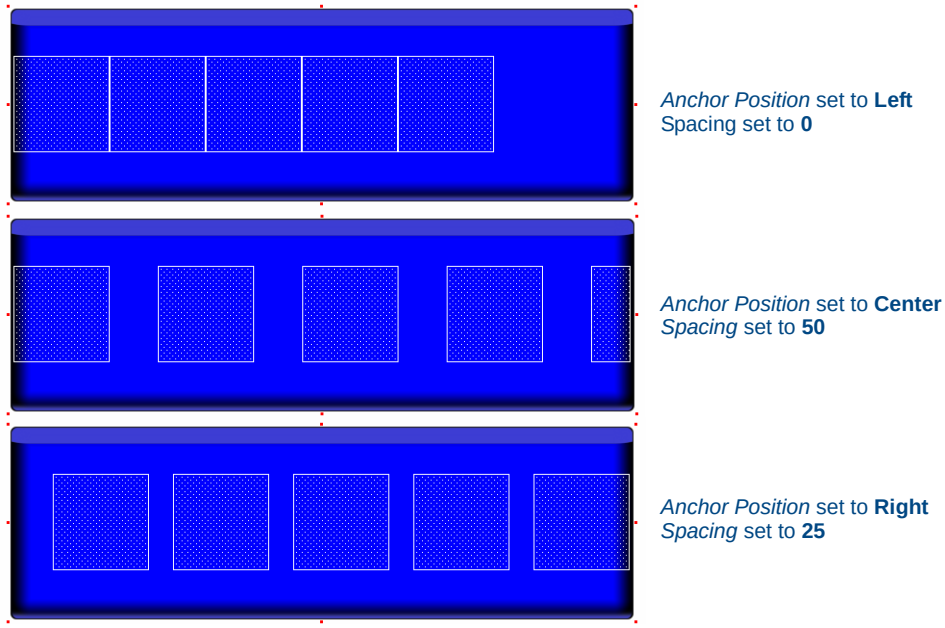

Anchor Position set to **Left**
Spacing set to **0**
Anchor Position set to **Center**
Spacing set to **50**
Anchor Position set to **Right**
Spacing set to **25**

FIG. 259 Sub-Page View button in the Design View - indicating various Spacing and Anchor Position settings

Creating Sub-Page View Buttons

To create a new Sub-Page View button:

1. Open the Page or Popup page that the button will be added to - double-click on the page in the Workspace Navigator (Pages tab) to open the page and bring it into edit focus.
2. Select the Button Draw tool from the Button Selection/Draw toolbar (FIG. 260).

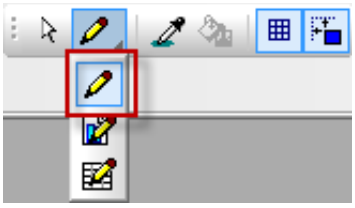


FIG. 260 Selection/Drawing Tools toolbar - Button Draw Tool

NOTE

When the Button Draw tool is selected, the Drawing toolbar becomes activated. By default, the options in the Drawing toolbar retain their most recent settings. Once you set these options (button type, border, font type/size, border/fill/text colors), the same settings will automatically apply to all consequent new buttons, until they are explicitly changed.

3. With the Button Draw tool still selected, left-click inside the desired page (in the active Design View window), and while holding the left mouse button down, drag to draw the button to the desired size and shape (FIG. 261).

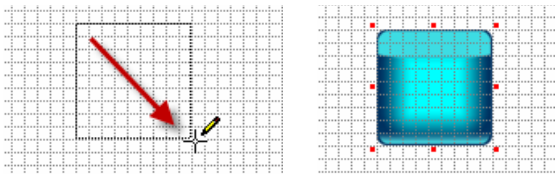


FIG. 261 Drawing a Button

- The minimum button size is 4 pixels in height or width.
- Upon the creation of a button on a page (or popup page) you will see selection handles appear on the outsides of the button that are small yellow squares with red interiors. This is a visual indication that the newly created button has the Edit Focus.

4. In the General tab of the Properties window - *Type* property, set **Sub-Page View** as the button type (FIG. 262).

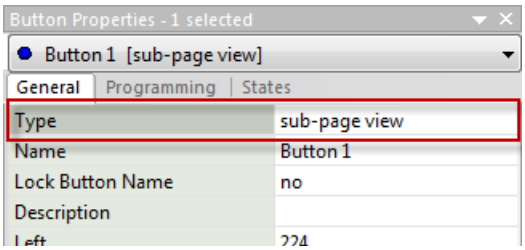


FIG. 262 Button Type Property - "sub-page view"

NOTE

This selection is not limited by the panel-type of the active project. If the firmware of a given panel does not support this button type, it will be disregarded on the panel.

This selection updates the Properties window, and the Design View window to represent the properties specific to this button type.

5. Edit the button's **General** properties as necessary (*General* tab of the Properties window).
6. Edit the button's **Programming** properties as necessary (*Programming* tab of the Properties window).
7. Edit the button's **States** properties as necessary (*States* tab of the Properties window).
8. Select **File > Save** to save your changes.

Assigning a Sub-Page Set to the Sub-Page View Button

Once you created a series of Sub-Pages and added them to a Sub-Page Set, the final step is to assign the Sub-Page Set to the Sub-Page View button. This is accomplished via the *Sub-Page Set* (General) button property for the Sub-Page View button.

1. Select a Sub-Page View button.
2. In the *General* tab of the Properties window, select a Sub-Page set from the **Sub-Page Set** drop-down menu. This menu lists all Sub-Page Sets that have been defined for this project (FIG. 263):

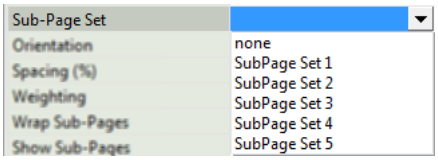


FIG. 263 Sub-Page Set (General) button property for Sub-Page View buttons

Setting Sub-Page View Button Properties

Sub-Page View buttons have a set of button properties that can be configured via the fields in the Properties Window.

To set Sub-Page View button properties, click on the Sub-Page View button in the Design View. With the Sub-Page View button selected, the Properties window displays the properties available for the button, separated into three tabs (*General*, *Programming* and *States*).

To edit any of the listed properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

Setting General Properties: Sub-Page View Buttons

The following general button properties are supported for **Sub-Page View** buttons. The properties that are highlighted and in bold type are specific to Sub-Page View buttons and relate to controlling how the scrolling region will look and behave:

General Properties: Sub-Page View Buttons	
Type	See page 251
Name	See page 246
Lock Button Name	See page 246
Description	See page 241
Left	See page 243
Top	See page 250
Width	See page 251
Height	See page 242
Border Style	See page 240
Disabled	See page 241
Hidden	See page 242
Sub-Page Set	**See page 250** ***Note**: Refer to the Sub-Page Sets* section on page 179 *for instructions on creating a Sub-Page set.*
Orientation	**See page 246**
Spacing (%)	**See page 249**
Anchor Position	**See page 239**
Wrap Sub-Pages	**See page 252**
Show Sub-Pages	**See page 249**
Allow Dynamic Reordering	**See page 238**
Reset View on Show	**See page 248**

Setting Programming Properties: Sub-Page View Buttons

The following programming properties are supported for **Sub-Page View** buttons:

Programming Properties: Sub-Page View Buttons	
Address Port	See page 254
Address Code	See page 254
String Output Port	See page 257
String Output	See page 257
Command Port	See page 255
Command Output	See page 255
***Note**: Maximum command, string and text length = 4096 characters.*	

The Address Port and Code assignments for Sub-Page View buttons are provided only for use in SEND-COMMANDS (not to trigger actions). Sub-Page View buttons do not utilize Channel Port/Code addresses.

Setting State Properties: Sub-Page View Buttons

Once you have created a *Sub-Page View* button, you can use the States tab of the Properties window to set/edit state-oriented button properties. To edit any of the listed button properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

*Sub-Page View buttons use only one State - **Off**.*

The following button state properties are supported for **Sub-Page View** buttons. Note that depending on the Panel associated with your project some of these options may not be available. For example if you have specified a non-video capable panel in your project, the Video Fill option(s) will not appear:

States Properties: Sub-Page View Buttons			
Draw Order	See page 286	Icon Slot	See page 286
Border Name	See page 285	Icon Justification	See page 286
Chameleon Image	See page 285	Icon X Offset	See page 286
Border Color	See page 285	Icon Y Offset	See page 287
Fill Color	See page 286	Font	See page 286
Text Color	See page 289	Text	See page 289
Text Effect Color	See page 290	Text Justification	See page 290
Overall Opacity	See page 287	Text X Offset	See page 290
Video Fill	See page 291	Text Y Offset	See page 290
Video Cropping	See page 290	Text Effect	See page 290
Video Pass-Thru	See page 291	Word Wrap	See page 291
Streaming Source	See page 288	Sound	See page 288
Bitmap	See page 285	Marquee Direction	See page 287
Bitmap Justification	See page 285	Marquee Repeat	See page 287
Bitmap X Offset	See page 285		
Bitmap Y Offset	See page 285		
Scale Bitmap To Fit	See page 288		

Creating a Scrolling Region - Example

Step 1 - Create Sub-Pages

The first step in creating a scrolling region is to create the *Sub-Pages* that will display within the scrolling region:

1. Select **Panel** > **Add Popup Page** to open the *Add Popup Page* dialog (FIG. 264).

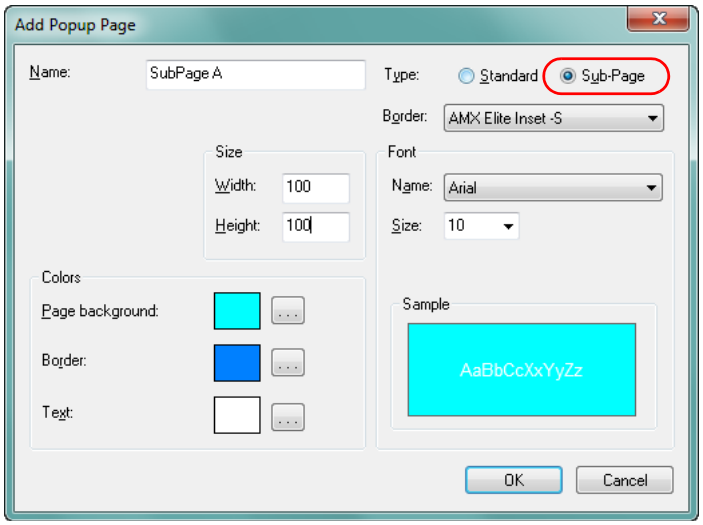


FIG. 264 Add Popup Page dialog

2. Select **Sub-Page** as the *Type*.
3. Enter a *Name* for the new Sub-Page and set the *Size*, *Colors*, *Border* and *Font* settings, just as you would for a Standard Popup Page.

   For this example:

   - Name = *Sub-Page A*
   - Size = *100x100*
4. Click **OK** to save your changes and close the *Add Popup Page* dialog.
5. The newly created Sub-Page is listed in the Workspace Window - Pages Tab, in the *Sub-Pages* folder (FIG. 265).

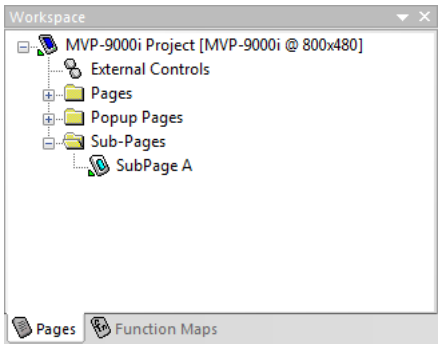


FIG. 265 Workspace Window - Pages tab - "Sub-Page A" added

6. Repeat steps 1 - 5 to create four additional Sub-Pages, named "*Sub-Page B*" - "*Sub-Page E*" (FIG. 266).

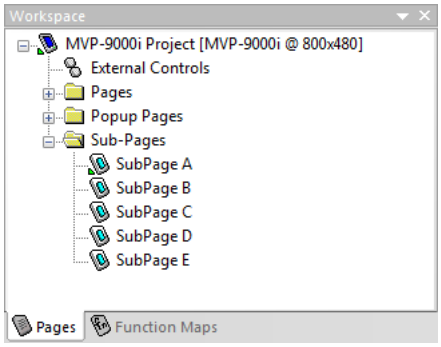


FIG. 266 Workspace WIndow - Pages tab - "Sub-Page A" - "Sub-Page E" added

NOTE

As with Standard Popup Pages, you can always copy a Sub-Page and paste it into the Project. The copy will initially be named "Copy Of <Page Name>". Double-click on the pasted entry in the Workspace Window to edit the name as desired. In this example, you could copy "Sub-Page A", and rename the pasted copies to "Sub-Page B", then "Sub-Page C", etc.

Once you have created a total of five Sub-Pages, you are ready to proceed to the next step - adding the Sub-Pages to a Sub-Page Set (next step).

NOTE

Keep in mind that are no hard limitations to the number of Sub-Pages that can be used in a scrolling region, five is simply an easy number to use for our example.

Step 2 - Create a Sub-Page Set

The second step in creating a scrolling region is to define a Sub-Page Set to group the Sub-Pages together so that they can be associated as a set to the horizontal scrolling region:

1. Select **Panel** > **Edit Sub-Page Sets** to open the *Edit Sub-Page Sets* dialog (FIG. 267).

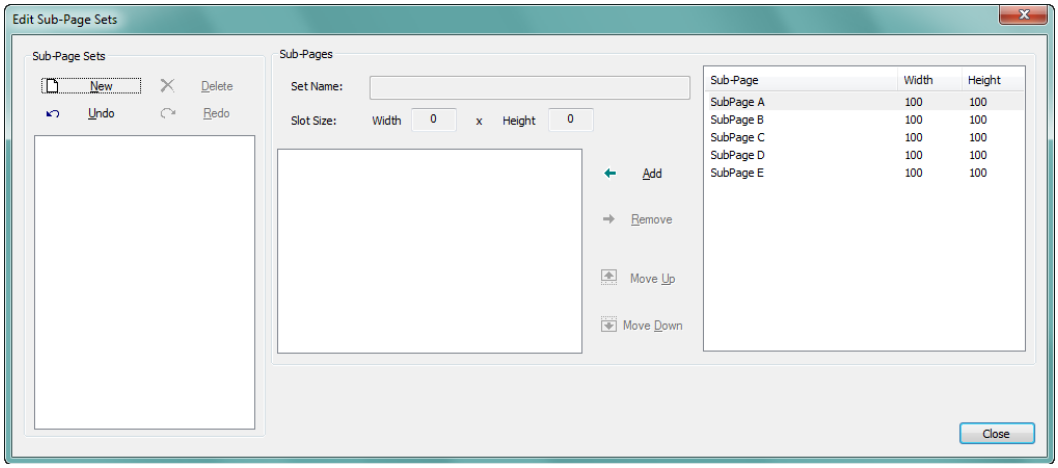


FIG. 267 Edit Sub-Page Sets dialog

Note the Sub-Pages that have been created (*Sub-Page A* - *Sub-Page E*) are indicated in the Sub-Pages list on the left-side of the dialog.

2. Under *Sub-Page Sets*, click **New**. This invokes the *Create Sub-Page Set* dialog (FIG. 268).

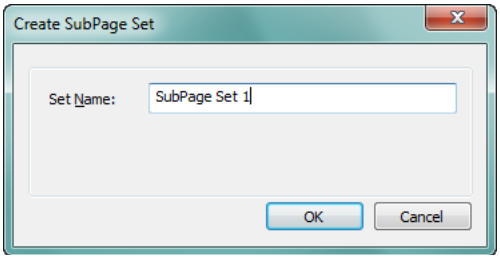


FIG. 268 Create Sub-Page Set dialog

3. Enter a *Set Name* (in this example, *"Sub-Page Set 1"*).
4. Click **OK** to save the new Sub-Page Set and close the *Create Sub-Page Set* dialog.
5. The new Sub-Page Set is indicated in the *Sub-Page Sets* list in the *Edit Sub-Page Sets* dialog (FIG. 269):

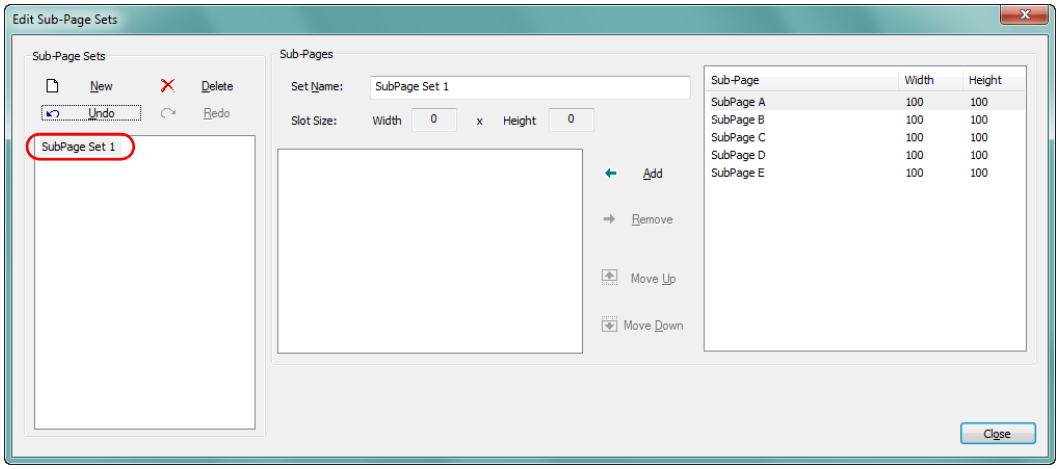


FIG. 269 Edit Sub-Page Sets dialog

6. Select a Sub-Page in the *Sub-Pages* list (on the right side of the dialog), and click **Add** to add each Sub-Page to *Sub-Page Set 1* (FIG. 270).

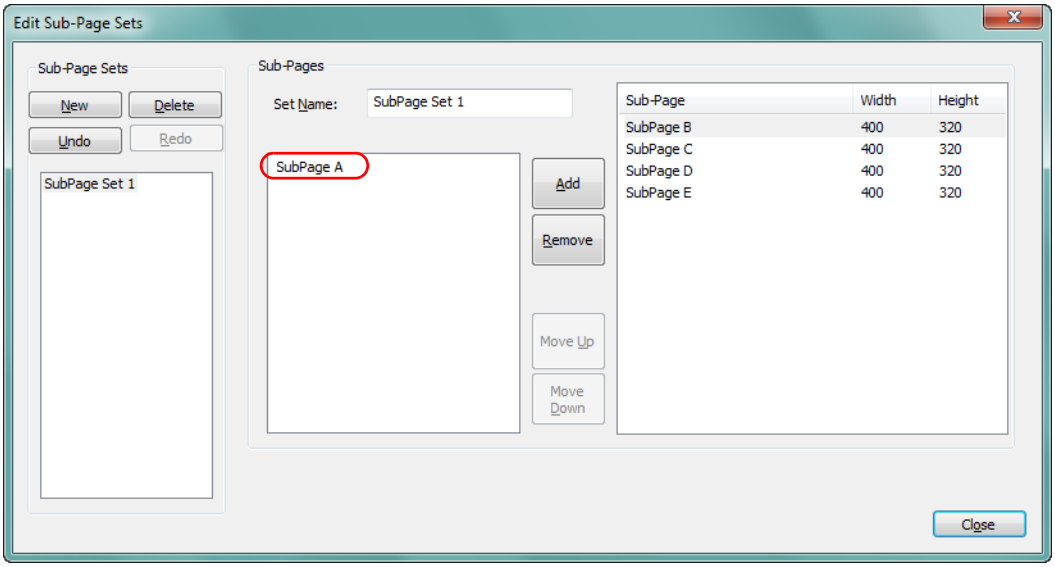


FIG. 270 Edit Sub-Page Sets dialog - "Sub-Page A" added to "Sub-Page Set 1"

- Alternatively, you can simply double-click on a Sub-Page to add it to the selected Sub-Page Set.
- Repeat this action until all of the Sub-Pages have been added to *Sub-Page Set 1* (FIG. 271):

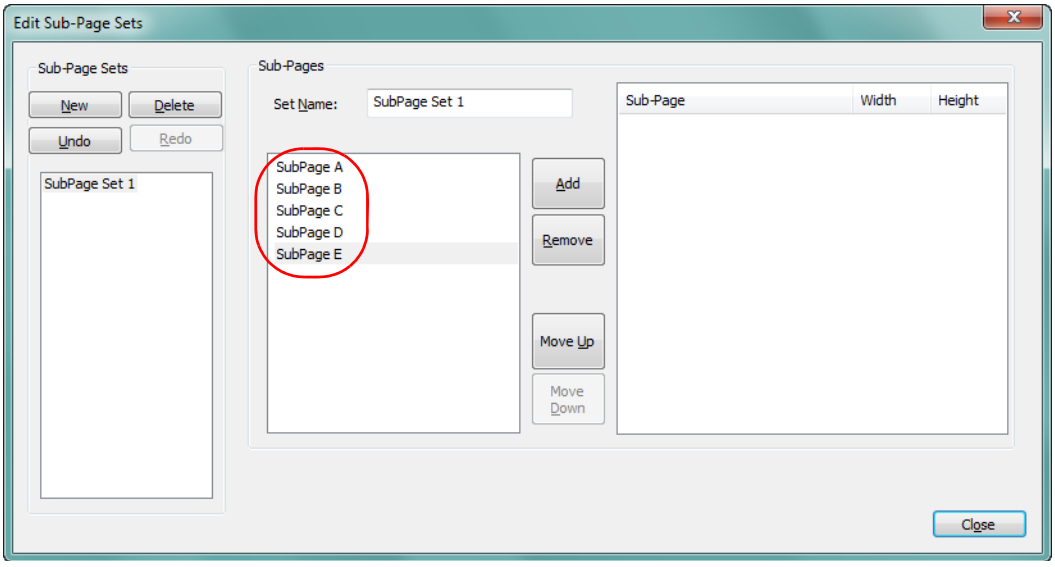


FIG. 271 Edit Sub-Page Sets dialog - "Sub-Page A" - "Sub-Page E" added to "Sub-Page Set 1"

The Sub-Pages will be displayed in the order that they are listed. Use the **Move Up** and **Move Down** buttons to set the order as necessary.

7. Click **Close** to save your changes and close the *Edit Sub-Page Sets* dialog.

Now that a Sub-Page Set has been defined to contain the new Sub-Pages, the Sub-Page Set (in this example, "*Sub-Page Set 1*") is available to be associated with a Sub-Page View button (next step).

Step 3 - Create a Sub-Page View Button

The third step of the basic workflow required to create a scrolling region is to create a Sub-Page View button which will serve as the container (or display area) for the specified Sub-Page Set.

For this example, we will create a Sub-Page View button to serve as a horizontal scrolling region. Sub-Page View buttons are created like any other button, but use button properties that are specific to configuring a scrolling region:

1. Select the Button Draw tool from the Button Selection/Draw toolbar and draw a button in the shape of a horizontal rectangle (FIG. 272).

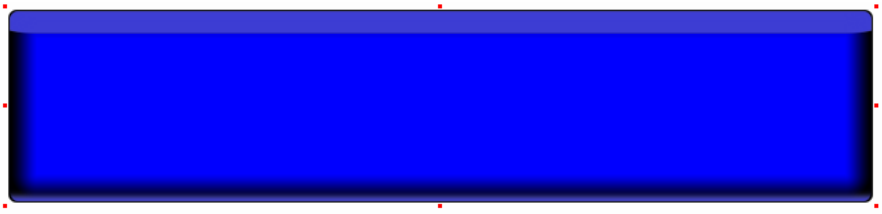


FIG. 272 Sub-Page View button

2. In the *General* tab of the Properties window - *Type* property, set **sub-page view** as the button type (FIG. 273).

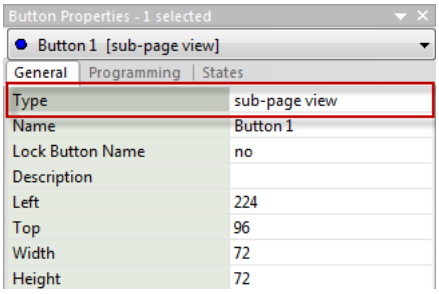


FIG. 273 Properties window (General tab) - Type property set to "sub-page view"

Step 4 - Assign the Sub-Page Set to the Sub-Page View Button

The Sub-Page Set that was defined in Step 2 must now be assigned to the Sub-Page View button:

1. In the Design View, select the Sub-Page View button.
2. In the *General* tab of the Properties window, select "*Sub-Page Set 1*" from the **Sub-Page Set** drop-down menu (FIG. 274).

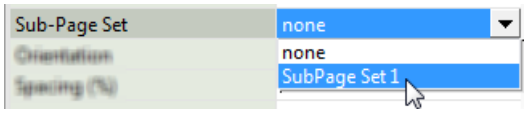


FIG. 274 Assign "Sub-Page Set 1" to the Sub-Page View button

3. Once the Sub-Page Set has been assigned to the Sub-Page View button, the Sub-Pages that will be displayed on the touch panel page are represented with placeholders (FIG. 275):

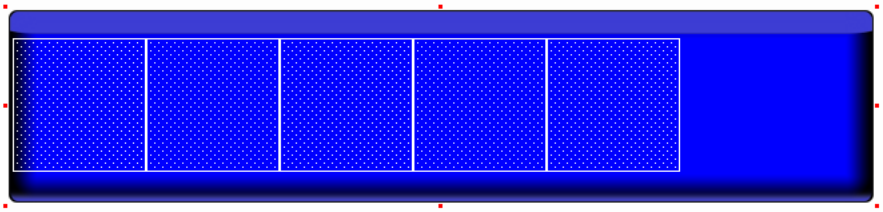


FIG. 275 Sub-Page View button with placeholders indicating "Sub-Page Set 1"

- These placeholders provide a visual indication of the current settings for Size, Anchor Position and Spacing of the Sub-Page Set contained by the Sub-Page View button.
- Note that by default, the *Spacing (%)* property is set to **0** (no spacing between the Sub-Pages), and *Anchor Position* is set to **left** (as represented in FIG. 275).
- See the *Sub-Page View Buttons - Design View* section on page 184 for details.

Step 5 - Set Other Scrolling-Related Properties for the Sub-Page View Button

Set the scrolling region-related (*General*) button properties for the Sub-Page View button:

- **Sub-Page Set** - Click the down arrow to select from a listing of all Sub-Page Sets that have been defined via the *Edit Sub-Page Sets* dialog. In this example, select *Sub-Page Set 1*.
- **Orientation** - Click the down arrow to select the orientation for the selected Sub-Page View button (*Horizontal/Vertical*, default = *Horizontal*). In this example, Orientation should be set to *Horizontal*.
- **Spacing (%)** - Enter an Integer (percentage) value to specify the amount of spacing between Sub-Pages when they are displayed within a Sub-Page View button (*0-100*, default = *0*).

  This value represents the percentage of the Sub-Page's width (for Horizontal Sub-Page View buttons) or height (for Vertical Sub-Page View buttons) defined by the first Sub-Page in the Sub-Page Set associated with this Sub-Page View button.

  For example, *0* (the default setting) will result in no spacing between the Sub-Pages displayed within a scrolling region. A value of *100* will insert a space that is equal to either the horizontal or vertical dimension (depending on wether the scrolling region is set to Horizontal or Vertical orientation) of the first Sub-Page in the Sub-Page Set.
- **Anchor Position** - Select a Anchor Position option to determine how the Sub-Page Sets associated with the selected Sub-Page View button are initially displayed, and justified within the Sub-Page View button.

  The options in this menu depend on the Orientation setting of the selected Sub-Page View button:

  For ***Horizontal*** orientation:

  - *Left*: First Sub-Page is displayed aligned to the left side of the Sub-Page View button.
  - *Middle*: The middle Sub-Page is displayed positioned in the center of the Sub-Page View button (*default setting*).
  - *Right*: Last Sub-Page is displayed aligned to the right side of the Sub-Page View button.

For ***Vertical*** orientation:

- *Top*: First Sub-Page is displayed aligned to the top of the button.
- *Center*: The middle Sub-Page is displayed positioned in the center of the button (*default setting*).
- *Bottom*: Last Sub-Page is displayed aligned to the bottom of the button.

- **Wrap Sub-Pages** - This setting specifies wether or not the Sub-Pages displayed within a scrolling region will wrap on a full scroll (*Yes/No*, default = *No*).
- **Show Sub-Pages** - This setting determines wether or not the Sub-Pages contained within a scrolling region are displayed on-screen (select *Yes* or *No*, default = *Yes*).

  If this property is set to No, then the Sub-Page View button will initially be displayed without sub-pages.
- **Allow Dynamic Reordering** - This option determines wether the Sub-Pages contained within a scrolling region can be re-arranged by an end-user (*Yes/No*, default = *No*).

  Note that with this property enabled (the default setting), the order in which the user last left the Sub-Pages will be saved to the panel.

  The new order is maintained across reboots and power cycles. Downloading a new project will reset Sub-Page ordering to the settings in the new project.
- **Reset View On Show** - This property determines wether to reset the positioning of the Sub-Pages displayed within a scrolling region (Yes/No, default = *No*), the next time the scrolling region is displayed.

Set Remaining Button Properties for the Sub-Page View Button

Finally, set the remaining button properties for the Sub-Page View Button, as you would for any other single-state button:

- *Setting General Properties: Sub-Page View Buttons* section on page 186
- *Setting Programming Properties: Sub-Page View Buttons* section on page 187
- *Setting State Properties: Sub-Page View Buttons* section on page 187

The result as it will appear on the Touch Panel will be a horizontal scrolling region with five Sub-Pages, similar to the illustration in FIG. 276:

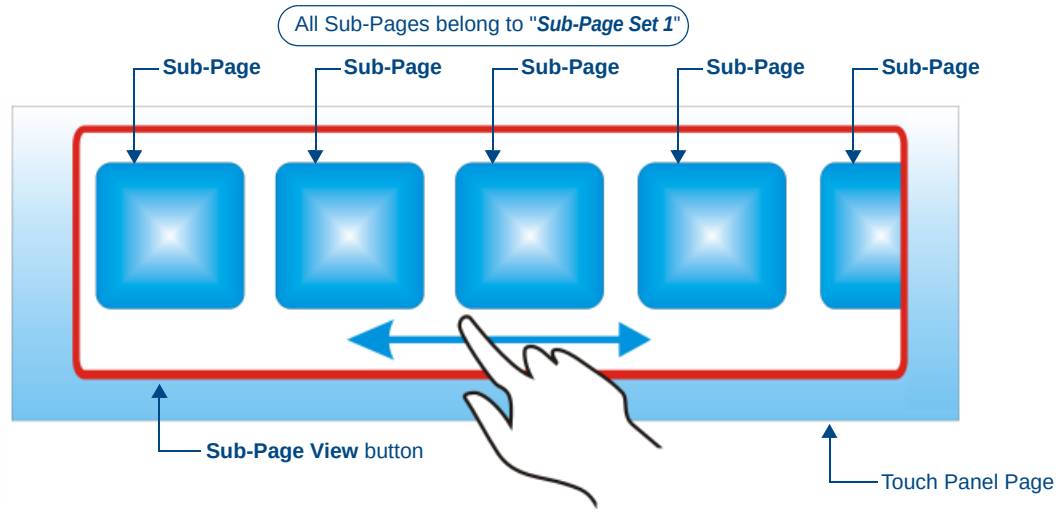


FIG. 276 Example - Horizontal Scrolling Region with five Sub-Pages

- Keep in mind that each Sub-Page can be configured like any other (Standard) Popup Page.
- The motion of the Sub-Page Set is defined via the General button properties for the Sub-Page View button.
- The "clipping" of each Sub-Page as it enters and leaves the scrolling region is handled by the Sub-Page View button.

List Box Buttons

Overview

TPD4 supports adding "List Box" buttons to projects created from panel types that support List Box buttons. The List Box button is a special-purpose button type for G4 devices/panels which utilizes a collection of subordinate buttons to display either dynamic or static data as a scrollable list (referred to as a “list box view”). List box buttons can be used to allow the end-user to view data in list form, and make selections from the list. The data displayed in List Box buttons comes from an associated List Data Table. List Box buttons are visible in TPD4, but do not have any visible properties on the panel. The primary role of the (hidden) list box button is to retain the properties of the list box view. The role of the subordinate buttons is to display the data in the list box view.

One example usage for List Box buttons might be to display a scrollable list of music playlists for the end-user to select and playback. In this case, the song titles displayed in the list box buttons are provided by a server, such as a MAX Home Theater server. Unlike other button types where you specify the text to be displayed on the button (via the Text button state property), the text that is displayed in a List Box button comes from a List Data Table. Each List Box button is associated to a List Data table, and you can specify how the List Box button displays the data (via General and State Button Properties).

In many ways, List Box buttons are set up like tables in TPD4, in that they use Rows and Columns to organize the data to be displayed. Think of a table where each cell is a button, and every button is populated with data coming from the List Data Table associated with the List Box button.

There are three main aspects to List Box buttons: the *Container* button, *Subordinate* buttons and the *List Data table*:

- The main List Box button is referred to as the *Container*. Select the List Box Container to set button properties for the entire list box button (affecting all subordinate buttons within the container).
- The List Box Container wraps around the Subordinate buttons which represent the display fields for data populated by the List Data Table. You can select subordinate buttons by the column to set button properties that affect only the affected column. Note that you cannot select individual "cells" (or buttons), since subordinate buttons only operate as a display of list data, not as individually customizable buttons.
- The List Data Table provides the data to be displayed in the List Box button. Every List Box button must be associated to a List Data Table. The List Data Table provides the data to be displayed in the List Box button. Every List Box button must be associated to a List Data Table. List Data Tables are created in TPD4, via options in the Edit List Tables dialog. The List Data Table is the data source for list box buttons, and can be defined statically or dynamically.

Further, TPD4 supports two modes for List Box buttons - *Managed* and *Unmanaged*:

- *Managed Mode*: In managed mode TPD4 treats the List Box button as a Container for the Subordinate buttons. It also presents properties for the list box button and properties for each column. Subordinate buttons appear in a grid fashion. Strict alignment and spacing rules are forced both by the view and in the properties the user may edit. For example, individual button properties are not accessible. Instead, managed mode presents properties by column. Subordinate buttons are created by adding columns and/or rows to the list box container button.

Once in Unmanaged mode the only way to put the list box back in the managed mode is by using the Undo feature.

- *Unmanaged Mode*: You can choose to place a List Box button in Unmanaged mode by selecting *Button > Make Unmanaged (Listbox)*. When a list box button is in Unmanaged mode the subordinate buttons are no longer managed by the List Box Container button. In Unmanaged mode, you can select, move and edit the properties of the individual subordinate buttons, but you cannot add or delete them.

The use of Unmanaged mode is typically limited to special circumstances where moving or modifying individual subordinate buttons is absolutely necessary, and should be considered an advanced mode for seasoned programmers only.

Using the Drawing Tools Toolbar With List Box Buttons

When the List Box Draw Tool is selected, the Drawing Tools toolbar can be used to set the border, fill and text color for the List Box button's subordinate buttons, at the time that the button is created.

- When you draw a List Box button with the List Box Draw Tool, you can use the Drawing Tools Toolbar to specify the border type, font, border color, fill color and text color for the On and Off states of the subordinate buttons, when the List Box Button is created.
- When you add columns and rows (with the List Box Button Container selected), the colors are defined via the Drawing Tools Toolbar; the width of the new column is defined based on the last column in the list box.
- If you select a column, then click the Add Column button (in the List Box Toolbar), the properties (including width) of the new column are taken from the selected column.

List Box Toolbar

The List Box toolbar contains shortcuts to the Selection and Button Draw tools (FIG. 277).

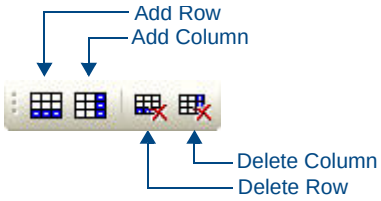


FIG. 277 List Box Toolbar

All toolbars in TPD4 are dockable, so they can be arranged within the application window.

- To undock any toolbar, double-click anywhere inside the toolbar (but not on a toolbar button). Double-click again to dock the toolbar.
- To move the toolbar, click and drag using the handle (the single vertical bar) at the far-left side of the toolbar.
- Select **View > Toolbars > List Box Toolbar** to show/hide this toolbar:

List Box Buttons - Resizing

When a List Box Container is resized by dragging the center handles, the change in size is split evenly between each row by adding/subtracting the change in size to the Row Height and Preferred Row Height properties of the Container (FIG. 278):

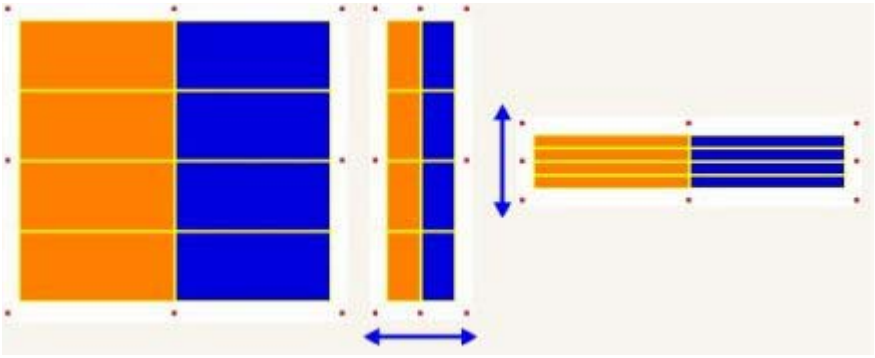


FIG. 278 List Box Buttons - Resizing (Container)

- If the change in size specified by the drag is not equally divisible by the number of rows, the remainder is applied to the Preferred Row Height. If Preferred Row is 0, the remainder is dropped.
- The minimum height for each row is **4 pixels**, plus the offset of the parent if the List Offset Enabled (General) property is set to “yes”.

- Use the corner resize handles to do a combination what the center handles do by resizing one of the corners.
- If the List Preferred Row is set to a non-zero value (i.e. 1), up to the number of rows present in the list box, resizing maintains the size ratio of the preferred row vs. the other rows.
- When a List Box Column is selected, only the right center handle is enabled for resizing (FIG. 279):

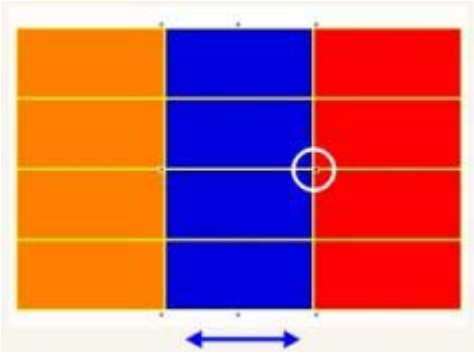


FIG. 279 List Box Buttons - Resizing (Column)

- When a single column is selected (not including the last column) resizing is limited to the width of the selected column and the next column to the right. After resizing the column, the next column to the right will resize to reflect the change.
- If the last column is selected, resizing is limited to the size of the last column plus the width left on the right hand side of the list box to the right edge of the page or popup. This allows you to change the overall width of the list box.
- When two or more columns are selected, the maximum width allowed per column is the amount of width from the right-hand side of the list box to the right edge of the page or popup divided by the number columns selected. When resized in this way, the new width is applied from right-to-left until the maximum width is met.
- When resizing the width of a column, the minimum allowed is **4 pixels**.

List Box Buttons: Managed Mode

When a List Box button is in managed mode, its subordinate buttons are managed strictly via edits performed on the list box button or its columns. In managed mode, you cannot individually select, create, or delete individual subordinate buttons.

- To create subordinate buttons, add columns and/or rows to the list box button.
- To delete subordinate buttons, remove columns and/or rows.
- Changing any properties such as colors, borders, or fonts for subordinate buttons are done on a column-by-column basis.

In managed mode, you cannot move the subordinate buttons around individually, or modify their Z-Order. You also cannot access the channel port and code properties of the subordinate buttons.

You can choose to place a List Box button in unmanaged mode by selecting Button > Make Unmanaged (Listbox). When a list box button is in Unmanaged mode the subordinate buttons are no longer managed by the List Box Container button. In unmanaged mode, you can select, move and edit the properties of the individual subordinate buttons. The use of Unmanaged mode is typically limited to special circumstances where moving or modifying individual subordinate buttons is absolutely necessary.

Creating List Box Buttons (Managed Mode)

NOTE

By default, List Box buttons are in managed mode when first created.

To create a list box button:

1. Select the List Box Draw Tool from the Selection/Drawing Tools toolbar (FIG. 280):

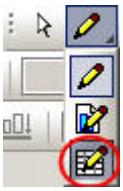


FIG. 280 List Box Draw Tool (Selection/Drawing Tools toolbar)

Use the List Box Button draw tool to draw list box buttons on the design view as you would any other button type.

2. Create a list box button by holding down the right mouse button on the view and dragging the mouse. This will create a list box button with one subordinate button (FIG. 281):

FIG. 281 List Box Button With One Subordinate Button

By default the list box container is created with a transparent background and a white border. If the background color of the page is white, you will not see the container. You can select the container and change the border color to black. This property is only visible in TPD4 and will not appear on the panel. This way you can see the container (FIG. 282):

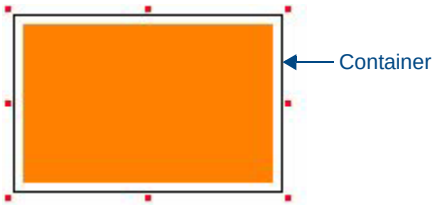


FIG. 282 List Box Button With One Subordinate Button - Container Selected

3. In managed mode you add subordinate buttons by adding columns or rows to the list box. Select the List Box Container button and click the *Add Column* or *Add Row* buttons from the List Box Toolbar (FIG. 283):

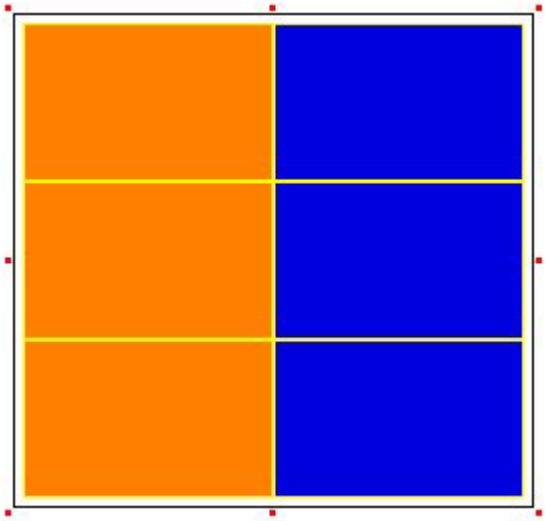


FIG. 283 Added Columns and Rows

NOTE

When the List Box Draw Tool is selected, the Drawing Tools toolbar can be used to set the border type, font, border color, fill color and text color for the on and off states of the subordinate buttons, when the List Box Button is created.

Adding Rows and Columns to a List Box (Managed Mode)

Adding Rows:

1. Select a List Box button in the Diagram Area (FIG. 284).

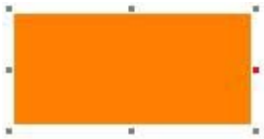


FIG. 284 List Box button selected

2. Click the Add Row toolbar button. This function adds a row to the bottom of the list box container (FIG. 285).

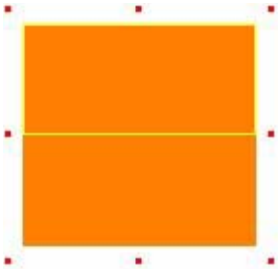


FIG. 285 Row Added

- The height of the row will be equal to the *List Row Height* (general) property of the list box container.
- The number of buttons added will be equal to the *List Column* (general) property.
- The width of each button is equal to the *Column Width* (general) property of each column in the list box.
- When a new row is added, each button will have the same state properties (i.e. *Fill Color*, *Border Color* etc.) as the button above it.

Adding Columns:

1. Select a List Box button in the Diagram Area (FIG. 286).

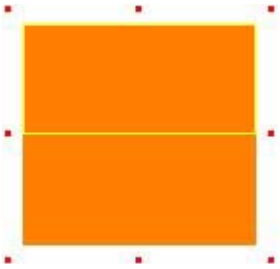


FIG. 286 List Box button selected

2. Click the Add Column toolbar button. This function adds a column to the right-hand side of the list box container (FIG. 287).

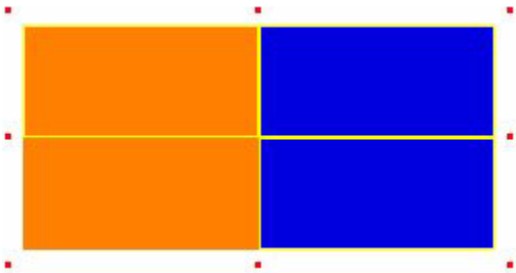


FIG. 287 Column Added

- The width of the last column is used for the new column.
- If a column is selected, the new column will have the same width as the selected column.
- A column of buttons will appear on the right-hand side of the list and will contain the number of buttons equal to the *List Row* (general) property.
- The maximum number of column allowed in a List Box Button is **20**.

Deleting Rows and Columns from a List Box (Managed Mode)

Deleting Columns:

1. Select the List Box button in the Diagram Area.
2. Click the Delete Column toolbar button to delete the right-most column in the list box container.
   - After deletion the container will be resized.
   - If only one column exists, this function is disabled.

If a column is deleted, and is part of the Column Display Order field of the parent, the Column Display Order field will be reset to "empty".

Deleting Rows:

1. Select the List Box button in the Diagram Area.
2. Click the Delete Row toolbar button to delete the bottom-most row in the list box container.
   - If the preferred row is deleted, the preferred row property should be set back to 1.
   - If only one row exists, this function is disabled.

Cutting, Copying and Pasting a List Box (Managed Mode)

Cutting, copying and pasting a managed list box works only when the list box container is selected by itself or when the list box container is selected along with other non-subordinate buttons.

- When one or more of the subordinate buttons are also selected, these features are no longer available.
- TPD4 takes care of copying, pasting and deleting all the subordinate buttons for you. All you have to do is select the container.

TPD4 does not support copying and/or pasting individual columns of a managed list box.

Unmanaged Mode

List Box Buttons: Unmanaged Mode

When a List Box button is created, it always defaults to Managed mode. You can choose to place a selected List Box button in unmanaged mode by selecting **Button > Make Unmanaged (Listbox)**. Note that once a List Box button has been moved to unmanaged mode, the only way to get the unmanaged list box back to a managed state is via **Edit > Undo**.

When a list box button is in Unmanaged mode the subordinate buttons are no longer managed by the List Box Container button. In unmanaged mode, you can select, move and edit the properties of the individual subordinate buttons, *but you cannot add or delete them.*

The use of Unmanaged mode is typically limited to special circumstances where moving or modifying individual subordinate buttons is absolutely necessary.

When a List Box button is put into Unmanaged mode:

- The Container, and individual subordinate buttons can be selected, moved and resized.
- If the Container is deleted, all of the subordinate buttons will be deleted as well. However, individual (or multiple selection) subordinate buttons can not be deleted.
- Rows and Columns cannot be removed nor added.
- The Z-Order of an unmanaged list box Container/Subordinate buttons cannot be changed.

Only certain button properties are available to edit in unmanaged mode:

Editable Button Properties of an unmanaged List Box *Container* button		**Editable Button Properties of an unmanaged List Box *Subordinate* button**	
General Properties:		**General Properties:**	
Name Lock Button Name Description Left Top Width Height List Table Port	List Table Address List Display Column Sort Order List Filter Column List Selectable List Table Wrap List Preferred Row	Name Lock Button Name Description Left	Top Width Height Border Style
Programming Properties:		**Programming Properties:**	
Address Port Address Code	Channel Port Channel Code	Feedback Address Port Address Code	String Output Port String Output Command Port Command Output
State Properties: Off only:		**State Properties: All States, Off, On**	
Border Color Fill Color	Overall Opacity	Draw Order Border Name Border Color Fill Color Text Color Text Effect Color Overall Opacity Bitmap Justification	Scale Bitmap To Fit Icon Justification Font Text Justification Text Effect Word Wrap Marquee Direction Marquee Repeat

Creating List Box Buttons (Unmanaged Mode)

By default, List Box buttons are in managed mode when first created.

To create a list box button:

1. Select the *List Box Draw Tool from the Selection/Drawing Tools toolbar*:
   Use the List Box Button draw tool to draw list box buttons on the design view as you would any other button type.
2. Create a list box button by right clicking on the view and dragging the mouse. This will create a list box button with one subordinate button (FIG. 288):

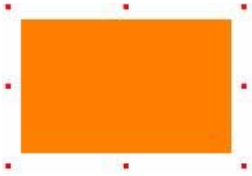


FIG. 288 List Box Button

3. Select the List Box Container button and click the *Add Column* or *Add Row* buttons from the List Box Toolbar. The example below shows a list box button with two columns and three rows (FIG. 289):

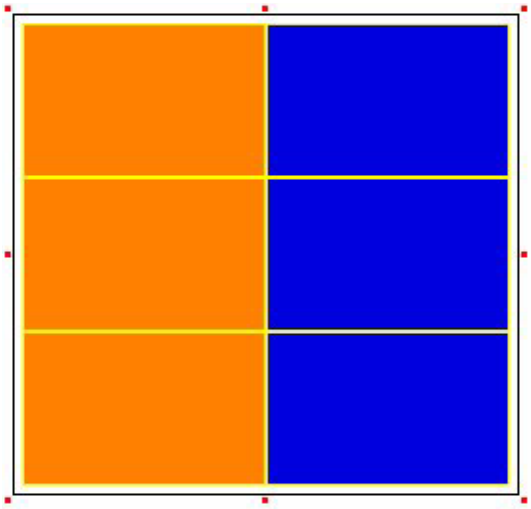


FIG. 289 List Box Button - two columns / three rows

4. Select **Button > Make Unmanaged (Listbox)**.
5. The program displays a *warning message* concerning the rules concerning unmanaged mode.
6. Click **Yes** to convert the List Box Button to unmanaged mode.

Rules for Unmanaged List Box Buttons

The following rules apply to List Box Buttons in Unmanaged Mode:

- Must be constructed from a Managed List Box (create a Managed List Box Button and change it to Unmanaged mode via the **Button > Make Unmanaged (Listbox)** option).
- Unmanaged transition is one-way. The only way to get the unmanaged list box back to a managed state is to use the Undo feature.
- Parent and individual child buttons can be selected.
- Parent and individual child buttons can be moved and resized.
- The parent can be deleted -> all children will be deleted as well.
  Individual (or multiple selection) child buttons can not be deleted.

Rows can not be removed nor added.

Columns can not be removed nor added.

If the user tries to delete one or more list box child buttons, a message box is given stating the reason it can not be deleted.

- Changing Z-Order of an unmanaged list box Parent/Child is not available.

  When changing the Z-Order of a non-list box button, the Z-Order can only be placed in front of or behind the entire list box collection. In other words, the Z-Order of the unmanaged list box must remain in order without gaps in the sequence. This logic is present for managed list boxes. By removing the check for whether the list box is managed or not, this functionality should carry over to unmanaged list boxes.
- State properties of individual unmanaged list box button can be changed.
- The High Port of a parent can not be changed via properties.
- The Channel Port/Code of a child can not be changed via properties.

List Box Buttons - Z-Order

In order for a list box to function correctly on a panel, the Z-Order (or State Draw order) of the subordinate buttons must follow the list box container's Z-Order in row-column sequential order.

- *For managed list boxes* the Z-Order is managed for you when rows and/or columns are added, deleted, pasted, or when the list box layout is changed (bring-to-front, send-to-back, etc.). A managed list box's Z-Order cannot be interrupted by another buttons Z-Order (i.e. a button separate from the list box cannot be behind some of the subordinate buttons of the list box and on top of the rest of the subordinate buttons – it is either behind or on top of the entire list box).
- *For unmanaged list boxes*, you can manipulate each subordinate button of an unmanaged list box. Even though you can individually select buttons in unmanaged mode, Z-Order placement remains managed by the list box. Only experienced programmers who fully understand list box construction and the logic of Z-Order placement should use the list box in unmanaged mode.

List Box Buttons - Container Button

In Managed mode, TPD4 treats a List Box button as a Container for the subordinate buttons that constitute the columns and/or rows of the List Box button (FIG. 290).

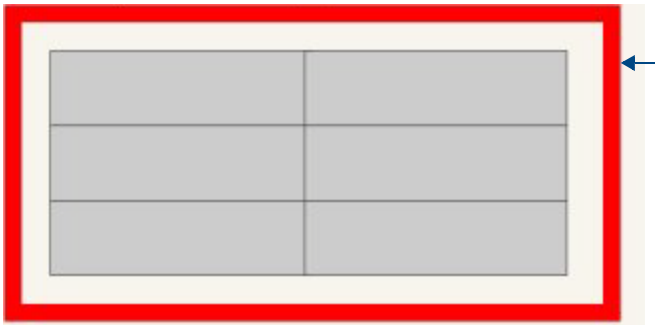


FIG. 290 List Box Buttons - Container Button

Select the Container to set button properties for the entire button (affecting all subordinate buttons within the container). Alternatively, you can select individual columns within the Container button to set button properties at the column level.

Click on the outside edge of the List Box button to select the Container. The (red) handles indicate that the entire button is selected, as shown below (FIG. 291):

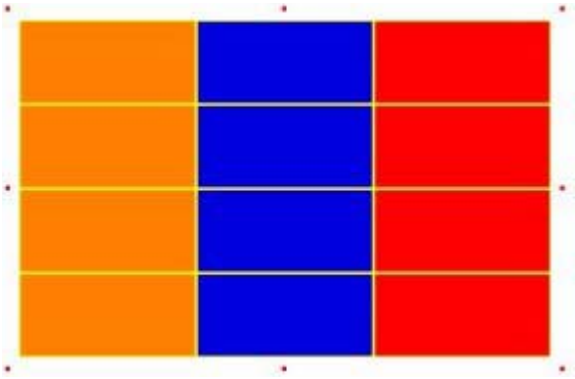


FIG. 291 List Box Button - Container Selected

Setting List Box Container Button Properties

Once you have created a *List Box* button, you can use the General, Programming, States tabs of the Properties window to set/edit button properties for the container button.

1. Select the Container to set button properties for the entire button (affecting all subordinate buttons within the container). Click on the outside edge of the List Box button to select the Container. The (red) handles indicate that the entire button is selected, as shown below (FIG. 292):

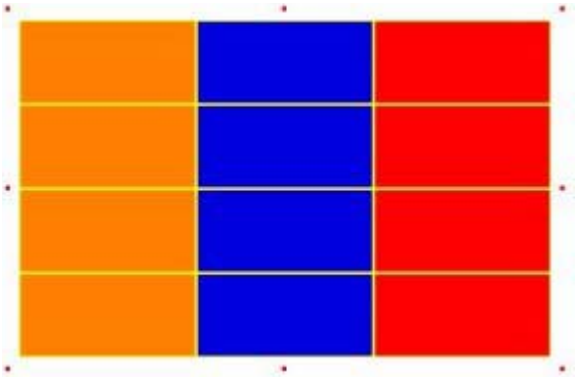


FIG. 292 List Box Button - Container Selected

2. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

There are additional properties that can be applied to a selected column within the Container button. See Setting List Box Button Column Properties for details.

List Box Container Properties vs. Column Properties (Managed Mode)

In Managed mode, properties are split into two perspectives:

1. The List Box button that contains all the subordinate buttons (called the List Box Container button) presents properties that deal with the list box as a whole. These properties are viewed by selecting the list box container (FIG. 293):

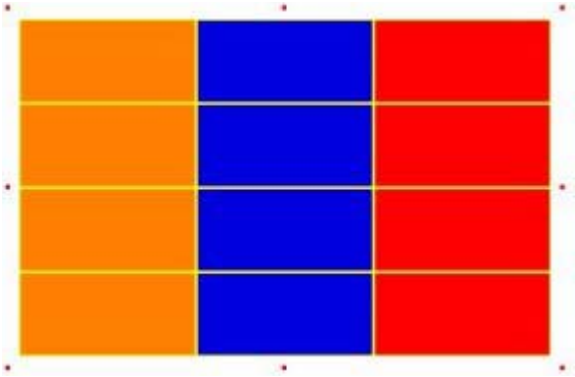


FIG. 293 List Box Button - Container Selected

2. The other perspective is based on columns of the list box. Managed mode will not allow you to select or move buttons outside of the container. Instead, you select columns of the list box to change properties for all the buttons in that column such as button width, border type, fill color etc (FIG. 294).

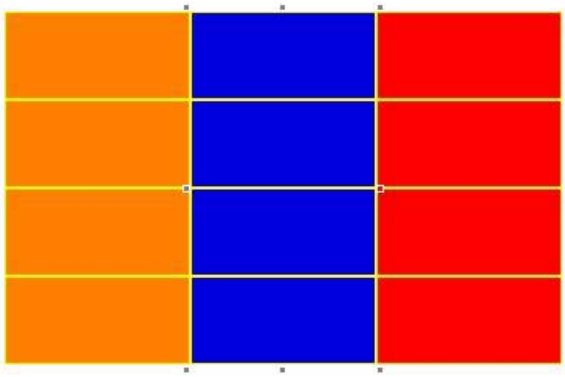


FIG. 294 List Box Button - Middle Column Selected

Setting General Properties: List Box Container Buttons

Once you have created a *List Box* button, you can use the General tab of the Properties window to set/edit general (non-state oriented) button properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

When a List Box container is selected the following General Properties will appear in the List Box General Properties toolbar.

- Type
- Name
- Description
- Left
- Top
- Width
- Height
- Above Popups
- Hidden

- List Table Port
- List Table Address
- Column Display Order
- Column Sort Order
- List Table Wrap
- List Row
- List Column
- List Row Height
- List Preferred Row
- List Preferred Row Height
- List Column Padding
- List Row Padding
- List Offset Enabled
- List Managed

Setting Programming Properties: List Box Container Buttons

Once you have created a *List Box* button, you can use the Programming tab of the Properties window to set/edit programming-oriented button properties. To edit any of the properties, click in the right-hand table cell to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The following programming properties are supported for **List Box** buttons:

- Address Port
- Address Code

Setting State Properties: List Box Container Buttons

Once you have created a *List Box* button, you can use the States tab of the Properties window to set/edit state-oriented button properties. To edit any of the listed button properties, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The State tab of the Properties window works in conjunction with the State Manager window. Note that if the State Manager is not displayed, or if no state(s) are selected in the State Manager, the States tab shows a list of *all* states associated with the selected button. Each state represented in the States tab is a collapsed folder containing the state properties for that particular state. Click the + symbol to expand each folder. If you select a state (or multiple states) in the State Manager, then the States tab only represents the selected state(s).

Use the **All States** option to apply any changes you make to all states on the selected button. Note that if you have multiple buttons selected (Shift+click to select multiple buttons a page), the All States option only affects states for the button that has Edit Focus. The button with edit focus would be the last one selected, and is indicated by having red-colored square handles (as opposed to the black squares that indicate that a button is selected, but does not currently have edit focus).

If you select the List Box Container, only the **Off** state is indicated, since List Box Container buttons do not support multiple states.

If you select a List Box Button container, the following state properties are supported:

- Border Color
- Fill Color
- Overall Opacity

However, List Box button columns do support multiple states (FIG. 295).

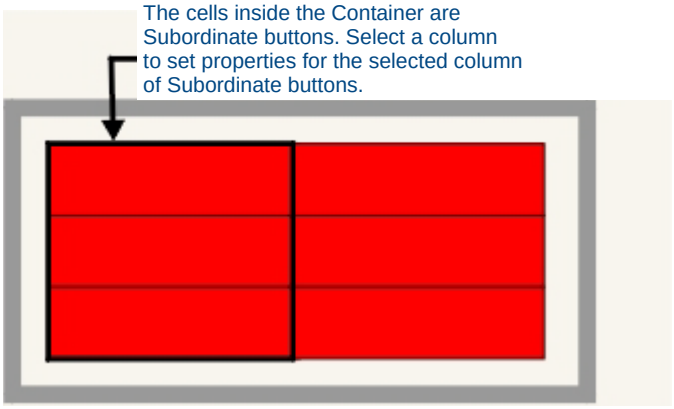

The cells inside the Container are
Subordinate buttons. Select a column
to set properties for the selected column
of Subordinate buttons.

FIG. 295 List Box Button Column

If you select a List Box Button column, additional state properties are supported.

- Draw Order
- Border Name
- Border Color
- Fill Color
- Text Color
- Text Effect Color
- Overall Opacity
- Bitmap Justification
- Scale Bitmap To Fit
- Icon Justification
- Font
- Text
- Text Justification
- Text Effect
- Word Wrap
- Marquee Direction
- Marquee Repeat

List Box Buttons - Subordinate Buttons

List box buttons and subordinate buttons have a special kind of relationship to keep track of which buttons belong to the list box button.

- The Z-Order of all subordinate buttons must follow list box button container and continue in sequential order from left to right, top to bottom.
- Each subordinate button's Channel Port must be set to the High Port of the list box button.
- The Channel Code of each subordinate button is set in sequential order starting with 1000 from left to right, top to bottom.
- The list box button's Row and Column properties are set to the total number of rows/columns.
- The subordinate button's Row and Column property is set to their row/column position.
- The List Box Button's Address Port and Code must be set to an Address Port/Code of a List Data Table.
- The list Box Button's Data Display property is a string surrounded by parenthesis.

  The string is a comma-delimited list of List Table Column Values.

  For example, if the list box's 1st 2nd and 3rd columns are assigned to columns 3, 4 and 1 then this property would be set to 3,4,1 (FIG. 296):

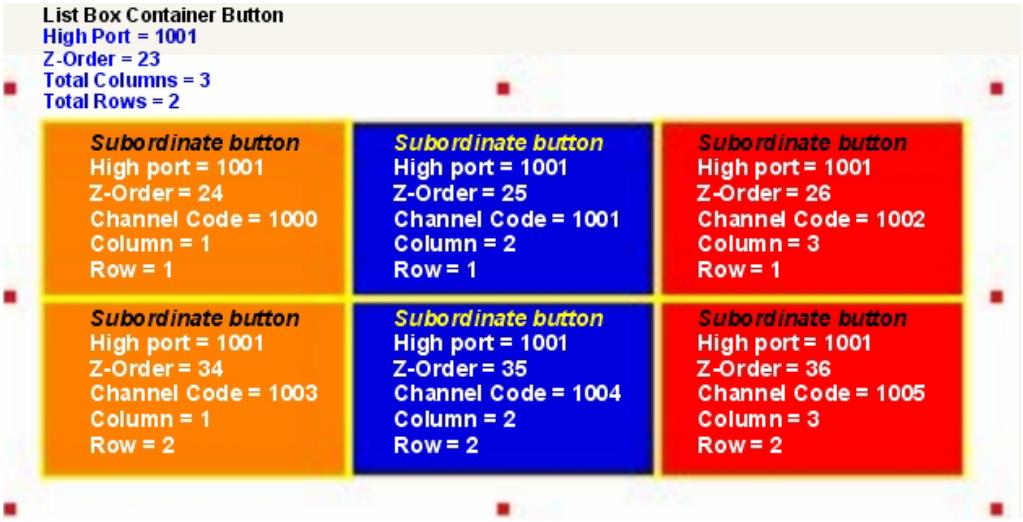


FIG. 296 List Box Button Columns (example)

List Box Buttons - Columns

In Managed mode, TPD4 treats a List Box button as a *Container* for the subordinate buttons that constitute the columns and/or rows of the List Box button.

You can select individual columns within the Container button to set button properties at the column level. Alternatively, select the *Container* to set button properties for the Container List Box button, affecting all subordinate buttons within the container (FIG. 297).

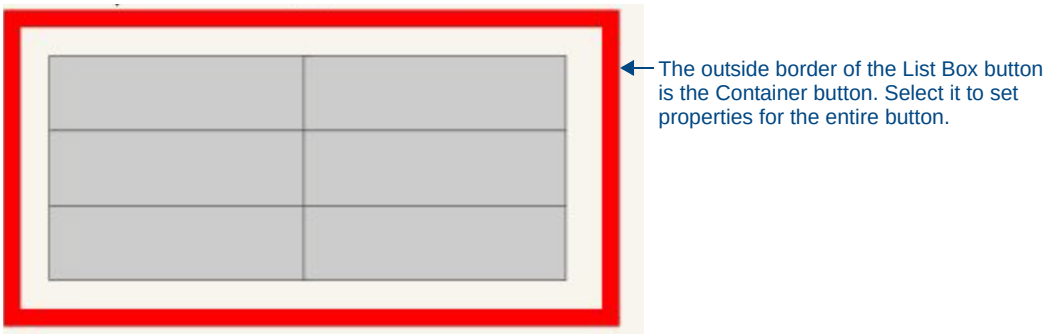


FIG. 297 List Box Buttons - Container Button

- Click inside the Container to select a column.
- The (blue) handles indicate that a single column is selected, as shown below (FIG. 298):

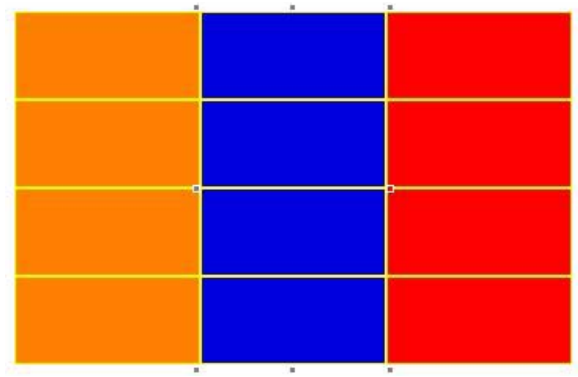


FIG. 298 List Box Button - Middle Column Selected

Setting List Box Button Column Properties

Once you have created a *List Box* button, you can use the General, Programming, States tabs of the Properties window to set/edit button properties for a selected column (within the List Box button container).

Properties applied to a column will affect all buttons in that column.

List Box buttons consist of a container and subordinate buttons that are created with Columns and Rows.

If you select a column within the container (as opposed to the List Box button container itself), you can set button properties that apply specifically to the selected column.

There are additional properties that can be applied to the List Box button container. See the Setting List Box Button Properties topic for details.

To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

Setting General Properties: List Box Button Columns

By selecting a column within a *List Box* button, you can use the General tab of the Properties window to set/edit general (non-state oriented) button properties.

To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

When a column is selected within a List Box Container, the following General Properties will appear in the General tab:

- Type
- Name
- Description
- Width
- Above Popups
- Border Style

Setting Programming Properties: List Box Button Columns

By selecting a column within a *List Box* button, you can use the Programming tab of the Properties window to set/edit programming (non-state oriented) button properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

When a column is selected within a List Box container, the following Programming Properties will appear in the List Box Programming Properties toolbar.

- Feedback
- Address Port
- Address Code
- String Output Port
- String Output
- Command Port
- Command Output

All of the above are available only for unmanaged list boxes. Managed list boxes do not have any programming properties available.

Setting State Properties: List Box Button Columns

By selecting a column within a *List Box* button, you can use the State tab of the Properties window to set/edit state-oriented button properties. To edit any of the properties in the table, click on an item in the right-hand column to activate the field. Depending on the item selected, you can either set the item manually, select from a drop-down menu, or both.

The State tab of the Properties window works in conjunction with the State Manager window. Note that if the State Manager is not displayed, or if no state(s) are selected in the State Manager, the States tab shows a list of *all* states associated with the selected button. Each state represented in the States tab is a collapsed folder containing the state properties for that particular state. Click the + symbol to expand each folder. If you select a state (or multiple states) in the State Manager, then the States tab only represents the selected state(s).

Use the **All States** option to apply any changes you make to all states on the selected button. Note that if you have multiple buttons selected (Shift+click to select multiple buttons a page), the All States option only affects states for the button that has Edit Focus. The button with edit focus would be the last one selected, and is indicated by having red-colored square handles (as opposed to the black squares that indicate that a button is selected, but does not currently have edit focus).

When a column is selected within a List Box container, the following State Properties will appear in the List Box States Properties toolbar:

- Draw Order
- Border Name
- Border Color
- Fill Color
- Text Color
- Text Effect Color
- Overall Opacity
- Bitmap Justification
- Scale Bitmap To Fit
- Icon Justification
- Font
- Text Justification
- Text Effect
- Word Wrap
- Marquee Direction
- Marquee Repeat

Subordinate Button Placement

In managed mode, the placement of subordinate buttons in a list box is automatic and controlled by the location of the list box container and laid out in a grid fashion.

Rows are added to the bottom of a list box and columns are added to the right-hand side of a list box.

When a row or column is added, the list box container is resized automatically to fit the new region of subordinate buttons added.

Subordinate Buttons - Drag and Drop Capability

Full drag and drop capability is supported for Subordinate List Box buttons:

You can drag a column property of a list box and drop it on another column of a list box. The list box column will highlight when dragged on top of the column in the Design View and when dropped the property will change to the value dragged from the properties window.

You can also drag and drop one to two states in the State Manager window on a column of a List Box.

List Box Buttons - Navigation Buttons

General buttons can be used to provide a means for the user to control a List Box button. These buttons are referred to as *List Box Navigation buttons.*

Here are the actions that a list box navigation button can perform (selectable via the Channel Code property).

- **Up** - Move list up one entry.
- **Down** - Move list down one entry.
- **Page Up** - Move list up one page.
- **Page Down** - Move list down one page.
- **Home** - Move list to top of page.
- **End** - Move list to end of page.
- **Sort Column (1-20) -** Sort the specified column. On first press, the specified column is sorted alpha-numerically in descending order. Press again for an ascending re-sort.

The figure below (FIG. 299) illustrates a List Box (in white), five navigation buttons (in cyan) and a scroll bar (in yellow):

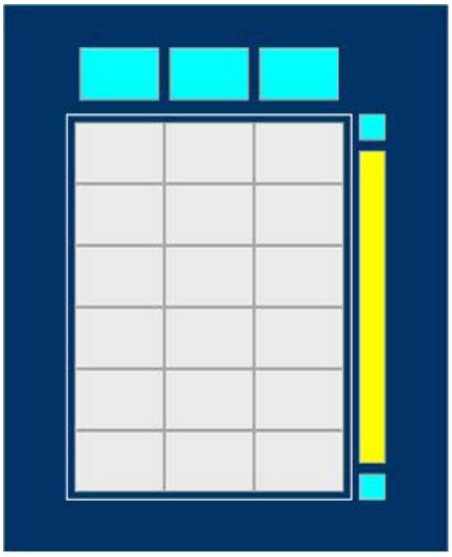


FIG. 299 List Box Buttons - Navigation Buttons

To construct a list box navigation button, add a general button to the page and set the Channel Port to the List Box and set the Channel Code to the desired function.

For example, the three large cyan buttons in the figure above could be used to sort columns of the list box. All three button's Channel Port should be set to the List Box.

- The first button's Channel Code would be set to "**Sort Column 1**".
- The second button's Channel Code would be set to "**Sort Column 2**".
- The third button's Channel Code would be set to "**Sort Column 3**".

The smaller cyan buttons, one above and one below the yellow button could be set to scroll the list box up and down.

- Simply set both button's Channel Port to the List Box.
- Set the top button's Channel Code to "Up" and the bottom button's Channel Code to "Down".

Alternatively you could leave these buttons out and program the external buttons (R4) to move the list up and down.

Creating List Box Navigation Buttons

To create a list box navigation button:

1. Add a general button to the page and set the Channel Port to the List Box and set the Channel Code to the desired function.

   For example, the three large cyan button in the figure above could be used to sort columns of the list box.

2. All three button's *Channel Port* should be set to the List Box (via the Properties Control - Programming Tab - assuming that at least one List Box button is defined in the project).
3. The first button's *Channel Code* would be set to "**Sort Column 1**".
4. The second button's *Channel Code* would be set to "**Sort Column 2**".
5. The third button's *Channel Code* would be set to "**Sort Column 3**".

   The smaller cyan buttons, one above and one below the yellow button could be set to scroll the list box up and down:

6. Simply set both button's Channel Port to the List Box.
7. Set the top button's Channel Code to "Up" and the bottom button's Channel Code to "Down".

Alternatively you could leave these buttons out and program the external buttons (R4) to move the list up and down.

NOTE

If you haven't renamed any of the List Box buttons that have been added to this project, they will be listed as "List Box 1", "List Box 2", etc. See Generated Button Names for details.

Creating a List Box Navigation Scroll Bar

One option for List Box Navigation Buttons is to link a single bargraph button to a Listbox for navigating the list data up and down.

Set the Level Port of the bargraph to the list box and set the Level Code to "Scroll". Now you have two visual options:

The first is depicted below (FIG. 300):

FIG. 300 List Box Navigation Scroll Bar (fill color indicates slider position)

- The Off state fill color is set to white and the On state fill color is set to green.
- The user can drag the bargraph at runtime to scroll the list up and down.

The second option (shown below) uses the slider property to indicate position (FIG. 301):

FIG. 301 List Box Navigation Scroll Bar (slider property indicates slider position)

- Both state fill colors for On and Off are set to white.
- Again, the user can drag the bargraph at runtime to scroll the list.

NOTE

These bargraphs depict position only. The size of the list is not represented.

Creating a List Box Feedback Scroll Bar

The yellow button in the figure below serves as visual feedback to indicate the list size and position. It does not have any navigation capability (FIG. 302):

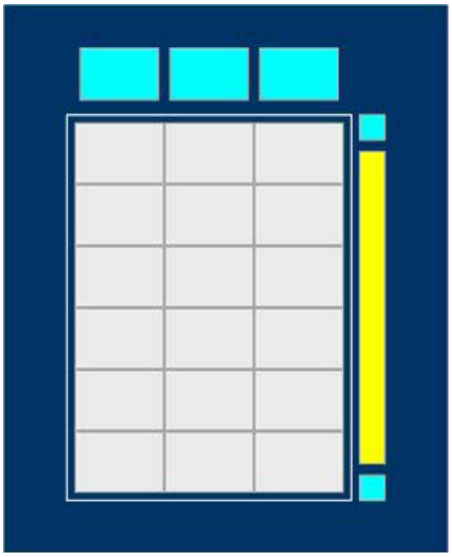


FIG. 302 List Box Buttons - Navigation Buttons

Scroll bar components

The figure below (FIG. 303) shows that the yellow bargraph is actually made up of 3 bargraph buttons labeled **bg1**, **bg2** and **bg3**:

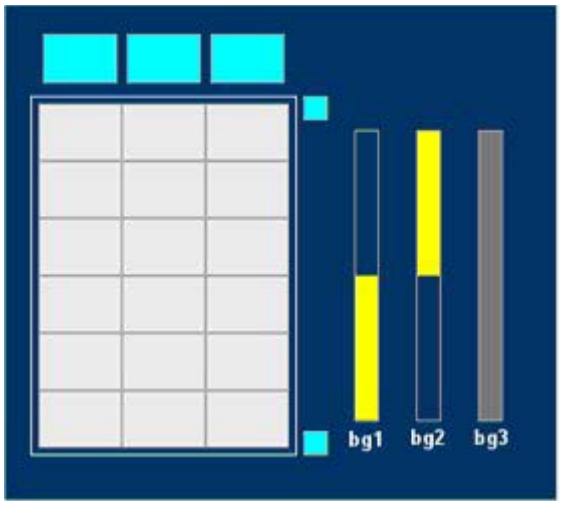


FIG. 303 List Box Buttons - Scroll bar components

Buttons **bg1** and **bg2** are called *Mask buttons*. They mask portions of button bg3 to visually indicate slider position and size.

To set these buttons up as a list box scroll bar set the button properties as follows:

Button bg1 properties:

- *Level Port*: set to List Box
- *Level Code*: bottom mask
- *Off Button State*: Fill color set to Transparent
- *On Button State*: Fill color set to yellow

Button bg2 properties:

- *Level Port:* set to List Box
- *Level Code*: top mask
- *Off Button State*: Fill color set to yellow
- *On Button State*: Fill color set to Transparent

Button bg3 is not connected to the list box. It is located behind buttons bg1 and bg2 and it's color will show through the transparent parts of bg1 and bg2 to represent the slider of the scroll bar. Button bg3 is not really needed. It could have been left out leaving the background color to show through as the slider.

Navigation Buttons - Channel Code values

Channel Code values that can be applied to Navigation buttons (via the Channel Code Programming property) include:

- **none** - no navigation command will be associated with this button.
- **Up** - Move up one entry
- **Down** - Move down one entry
- **Page Up** - Move up one page
- **Page Down** - Move down one page
- **Home** - Move to Top of page
- **End** - Move to bottom of page
- **Sort Column (1-20)** - Enter the number of the column to use for alpha-numeric sorting (1-20).

The *Sort Column* entries contain the column titles (up to 20 columns, supplied by the List Data Table). Once applied to a Navigation Button, the button will sort the list box based on this column selection.

It is up to you to make sure a column exists in the table when defining a "*Sort Column #*".

TPD4 displays these list values regardless of the panel type. However, TPD4 will save the "List" or "Selection" version of "Up, Down,..." automatically, based on whether the PPF says the panel type supports "Selection" (i.e. a panel without a touch overlay, such as the MAX AVP).

List Data Tables

TPD4 supports the ability to create, edit and delete List Data Tables in support of List Box buttons. List Data Tables provide the information that is displayed on List Box Buttons.

Since the purpose of List Box Buttons is to present data, a list data table is used to manage the data of a List Box Button and can be designated through a property of the List Box Button. This separates the data from the view so that List Data Table can be created *statically* or *dynamically*:

- TPD4 presents a list table view to create and define a static List Data Table. Once created, the table can be designated for a list box through a property of the List Box Button.
- You can also designate dynamic List Data Table data for a List Box Button that is created at runtime by the panel firmware.

List Data Tables are created via options in the Edit List Table dialog, and it's associated dialogs:

- Create New Table dialog
- Column Types dialog
- Change Port/Addr (New Table Name) dialog

List Data Table Properties

The following list data table properties are editable:

- **Table Name** - The Name is a character value used to identify the list table data.
- **Table Address Port** - The Address Port property is an integer value representing the port of the list data table.
- **Table Address Code** - The Address Code property is an integer value representing the address code of the list data table.
- **Table Type** - The user has the ability to select either a static or a dynamic table type. A dynamic table type is updated dynamically from the master with data. Therefore, no raw data will be entered by the user.

Static List Box Data

A static list box populates button information based on data stored on the panel.

Note that unlike Dynamic List Box data, the device cannot display current state information provided by the master.

Conversely, the device will resume the last known static table event should power be cycled.

Dynamic List Box Data

Dynamic List Box data populates button information based upon communications between the panel and a NetLinx Master. Opposed to static data, the information displayed on the device is on the master and not the device.

Dynamic List data must be included in the NetLinx code running on the NetLinx Master in order to be available for use on List Box Buttons.

Dynamic tables are great for creating parameters for displaying changing options, i.e., date, time or temperature; however, if the device loses power it will not be able to display the last known states.

Changing Port and Address Assignments for a List Data Table

1. Open the Edit List Tables dialog (**Panel > Edit List Tables**, or click the toolbar button).

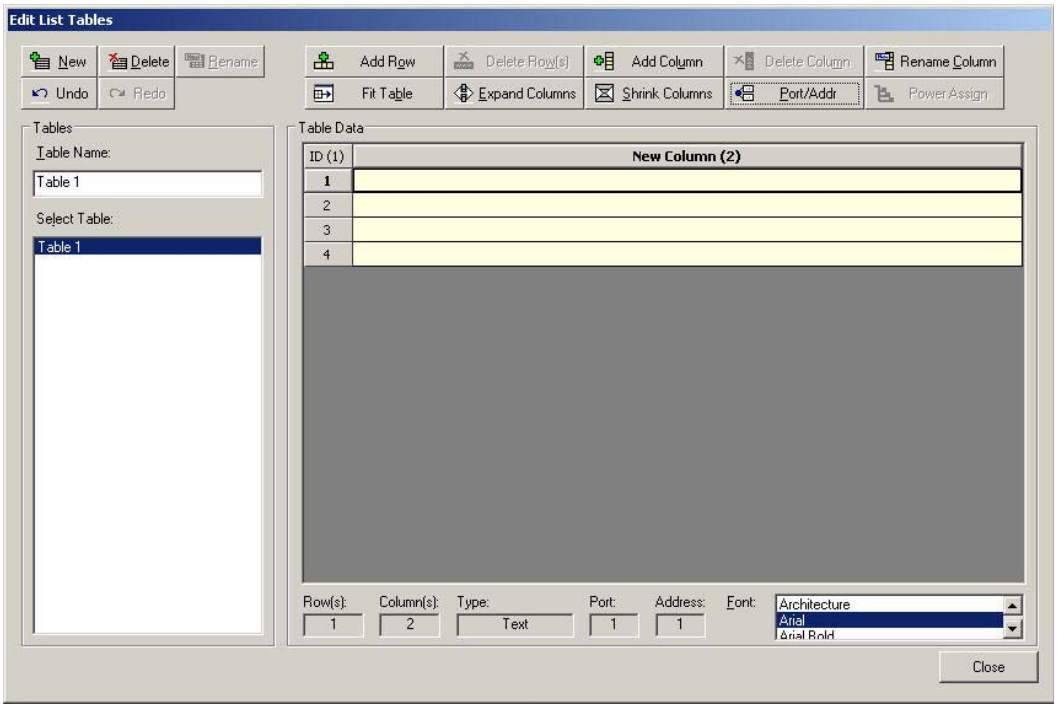


FIG. 304 Edit List Tables dialog

2. Select a List Data Table (in the *Tables* list).
3. Click the **Port/Addr** command button (FIG. 305).

FIG. 305 Edit List Tables dialog - Port/Addr command button

This opens the Change/Port Addr dialog, showing the current Port/Address assignments for the selected table (FIG. 306).

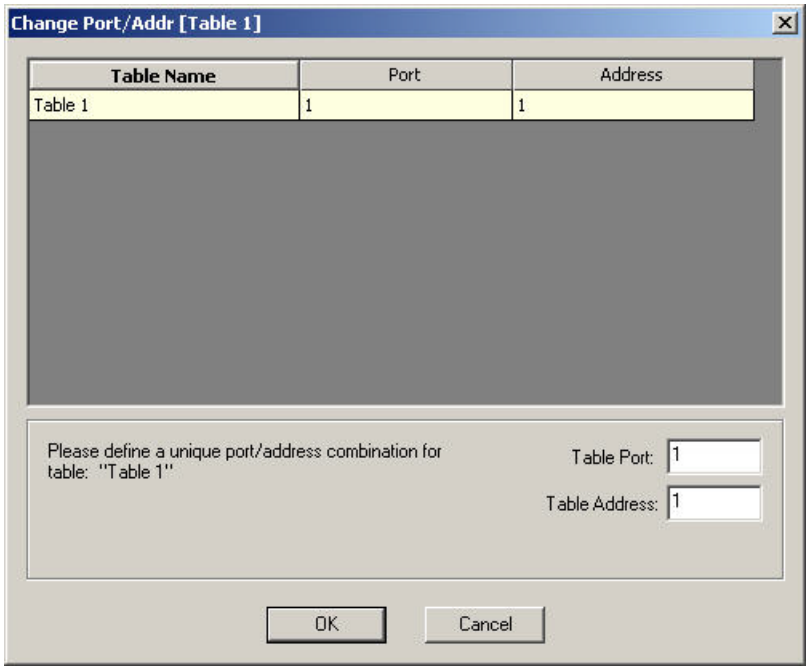


FIG. 306 Change Port Address dialog

4. Enter the new Port and Address assignments for this List Data Table in the *Table Port* and *Table Address* fields at the bottom of this dialog.
5. Click **OK** to save the changes and close this dialog.

You can use the *Power Assign* feature in the Edit List Tables dialog to quickly assign Port and Channel information for multiple columns in the List Data Table, via the List Table Power Assign dialog.

Attaching a List Data Table to a List Box Button

Once you have created a list Box Button, as well as a List Data Table, you are ready to associate the List Data Table to the List Box Button. It is this association that allows the data in the List Data Table to be displayed on the List Box Button.

There are two variations on this concept:

- Static List Box Data, which populates the associated List Box Button with the data entered into a List Data Table via the Edit List Tables dialog.

  and

- Dynamic List Box Data, which populates the List Box Button dynamically, with data defined in NetLinx Code.

Working With Static List Box Data

Creating a Static List Data Table

To create a Static List Data Table and associate it to a List Box Button, so that the data in the List Data Table is displayed in the List Box button:

1. If you haven't already done so, create a new List Box button, with enough rows and columns to accommodate the data that you will enter into the List Data Table.
2. Select **Panel > Edit List Tables** (or click the toolbar button) to open the Edit List Tables dialog.
3. Click **New** to open the Create New Table dialog, where you will specify basic properties for the new table.
   - **Name of Table**: Type a unique name for the table.
   - **Number of Columns**: Enter the number of columns to include in the table.
   - **Number of Rows**: Enter the number of rows to include in the table.
   - **Port**: Assign a *Port* and *Address* for the table. See Working With Function Codes for more information on Ports and Addresses.
   - **Address**: Assign a *Port* and *Address* for the table.

See the Working With Function Codes section on page 301 *for more information on Ports and Addresses.*

4. Click OK to save your changes and proceed to the Column Types dialog. Use the options in this dialog to assign a name and type to each column in the table.
5. Click OK to save your changes and return to the Edit List Tables dialog.

   Note that the *Table Data* display reflects the columns/rows and column names that you specified.

   Also note that the table you just created is listed in the *Tables* list box (left side of the dialog). As you create more new tables, each one is added to the Tables list. You can select any table from the list to edit its properties.
6. At this point, use the command buttons along the top of this dialog to add/delete rows and columns from the active table, resize the table, and specify a Port and Address to the table:
   - **Add Row** - Click to add a row to the table.
   - **Delete Row** - Click to delete one or more selected rows from the table.
   - **Add Column** - Click to add a column to the table. This option invokes the Column Types dialog. Use the options in this dialog to assign a name and type to each column in the table.
   - **Delete Column** - Click to delete the column that currently has focus.
   - **Fit Table** - Click to resize the table to fit inside the Table Data window.
   - **Expand Columns** - Click to expand each column by equal amounts. Note that this option is disabled once the table reaches the maximum allowed width.
   - **Shrink Columns** - Click to shrink each column by equal amounts. Note that this option is disabled once the table reaches the minimum allowed width.
   - **Port/Addr** - Click to assign a unique Port and Address combination for the table. This option invokes the Change Port/Addr dialog. Use the *Table Port* and *Table Address* fields to specify the port/address combination.
   - **Rename Column** - This option allows you to rename the column label at the top of a column.
   - **Power Assign** - Click to open the List Table Power Assign dialog. Use the options in this dialog to set button-level actions, channel/variable text, and code parameters to one or more selected buttons.
7. Edit the cell data as desired: When you click inside a particular cell:
   - If column is of the type "Text", the user will be able to enter data.
   - If the column is of the type "Page Flip", then a drop-down list of available pages is displayed.
   - If the type is of the type "Channel Code", then you will need to enter a channel port/code combination value.

- If the column is of the type "Bitmap", you will be able to select a bitmap that has already been defined in the project.
- If the column is of the type "Icon", you will be able to select an icon that has already been defined in the project.

8. Now you will attach the List Data Table to a List Box Button - see Attaching a Static List Data Table to a List Box Button for details.

Editing Cell Data

When you click inside a particular cell:

- If column is of the type "**Text**", the end-user will be able to enter data.
- If the column is of the type "**Page Flip**", then a drop-down list of available pages is displayed.
- If the type is of the type "**Channel Code**", then you will need to enter a channel port/code combination value.
- If the column is of the type "**Bitmap**", you will be able to select a bitmap that has already been defined in the project.
- If the column is of the type "**Icon**", you will be able to select an icon that has already been defined in the project.

To move rows, select one or more rows and click and drag them to another spot in the table.

List Data Table Column Types

The following are the available column types to select from:

- **Text** - The column will contain a variable length text value.
- **Icon** - The column will display icons from a table of icon references.
- **Bitmap** - The column will display bitmap images from a table of bitmap references.
- **Page Flip** - The column will display valid page names that will be activated as page flips. This column is hidden from the user on the display and is used as navigation.
- **Port/Channel Code** - This column will contain a port/channel code combination that is sent to the master upon activation of a particular row.

Attaching a Static List Data Table to a List Box Button

Once you have created a list Box Button, as well as a Static List Data Table, you are ready to associate the List Data Table to the List Box Button. It is this association that allows the data in the List Data Table to be displayed on the List Box Button.

1. In the Design View window, select the List Box Button that you want to associate with a List Data Table.
2. In the General tab of the Properties Control Window, click inside either the List Table Port or the List Table Address fields. Clicking inside these fields enables the browse (...) button. Click this button to access the Attach Table To List Box dialog.
3. This dialog lists all Static List Data Tables in your project. Select the table that you want to attach to the selected List Box Button.

   Note that once a table is selected, the Table Port and Table Address fields are automatically updated with that table's port/address assignments.
4. Click **OK** to save your changes and close the dialog.

Deleting a List Data Table

To delete a List Data Table from your project:

1. Select **Panel > Edit List Tables** to open the Edit List Tables dialog.
2. Select the table that you want to delete, in the Tables list.
3. Click the **Delete** command button.
4. The program will prompt you to verify this action before the table deleted. Click **OK** to proceed.

Working With Dynamic List Box Data

List Box Commands

There are two types of List Box Commands that can be used to define List Box Data in your NetLinx Code:

- Data List Commands
- Command Structure List View Commands

Data List Commands

Data List Commands	

^LDN	Creates a new data list. Unique list addresses and names are handled programmatically.
	Syntax:
	`"'^LDN-<list port>,<list address>,<column count>,<list name>'"`
	Variables:
	• list port = port where data resides
	• list address = address where data resides
	• column count = the number of data columns (includes hidden columns)
	• list name = User specified name for the data list
	Example:
	`SEND_COMMAND Keypad, "'^LDN-5,1,4,my songs'"`
	Creates a data list of 4 columns named "my songs" and places it at port 5, address 1.

^LDA	Adds a new row to an existing data list. Primary data is required.
	List box commands contain comma-delimited fields, but you can use commas within the fields. Use double-quotes to surround fields in which commas are needed.
	Syntax:
	`"'^LDA-<list address>,<uniflag>,<primary data>,<data2>,...'"`
	Variables:
	• list address = address where data resides
	• uniflag = indicates UniCode; 0 - No UniCode, 1 - Uses UniCode
	• primary data = the "key" data column. The information in this column provides each row with its uniqueness.
	• data2 = variable, column data information. The number of data fields is limited only to the number of columns in the data list.
	Example:
	`SEND_COMMAND Keypad, "'^LDA-1,0,Entry5,Meatloaf,Best of,Anything for Love'"`
	Adds a text row to the data list located at address 1. The primary data is set as Entry5. Meatloaf, Best of, and Anything for Love are all cells within the new row.
	Note the following rules apply:
	• Leading and trailing spaces are ignored before and after opening and closing double quotes.
	• Double quotes must be the first non-space character after the previous delimiter (,) and the last non-space character before the following delimiter (or end of command).
	• Within double quotes, the backslash (\) is used as an escape character. This is to allow double quote literals within the string bounded by double quotes. When a backslash is parsed, the next character is read as a literal value and the backslash is discarded. There are 2 cases in which you would use the backslash to escape a double quote literal within the field, to escape another backslash (commas do not need to be escaped).
	• Any data field that has a double quote literal as its first character MUST use double quotes to delimit the field, then use the backslash to escape the double quote literal.

Data List Commands (Cont.)	

^LDR	Removes a row from an existing data list
	Syntax:
	`"'^LDR-<list address>,<uniflag>,<primary data>'"`
	Variables:
	• list address = address where data resides
	• uniflag = indicates UniCode; 0 - No UniCode, 1 - Uses UniCode
	• primary data = the "key" data column. The information in this column provides each row with its uniqueness.
	Example:
	`SEND_COMMAND Keypad, "'^LDR-1,0,Entry5'"`
	Removes the text row Entry5 from an existing data list at address 1.
	Note the following rules apply:
	• Leading and trailing spaces are ignored before and after opening and closing double quotes.
	• Double quotes must be the first non-space character after the previous delimiter (,) and the last non-space character before the following delimiter (or end of command).
	• Within double quotes, the backslash (\) is used as an escape character. This is to allow double quote literals within the string bounded by double quotes. When a backslash is parsed, the next character is read as a literal value and the backslash is discarded. There are 2 cases in which you would use the backslash to escape a double quote literal within the field, to escape another backslash (commas do not need to be escaped).
	• Any data field that has a double quote literal as its first character MUST use double quotes to delimit the field, then use the backslash to escape the double quote literal.
	• List box commands contain comma-delimited fields, but you can use commas within the fields. Use double-quotes to surround fields in which commas are needed.

^LDC	Clears all rows in a given list.
	Syntax:
	`"'^LDC-<list address>'"`
	Variables:
	• list address = address where data resides
	Example:
	`SEND_COMMAND Keypad, "'^LDC-1'"`
	Clears all rows in data list located at address 1.

^LDD	Deletes the data list.
	Syntax:
	`"'^ LDD-<list address>'"`
	Variables:
	• list address = address where data resides
	Example:
	`SEND_COMMAND Keypad, "'^LDD-1'"`
	Deletes the data list located at address 1.

^LDT	Sets the column type for a data list. Column is the index of the first type to set, additional types sent are set in order.
	Syntax:
	`"'^LDT-<list address>,<column>,<type>,<type>,...'"`
	• Variables:
	• list address = address where data resides
	• column = the starting column number
	• type = subsequent columns. 0 - Text; 3 - Channel; 4 - Page
	Example:
	`SEND_COMMAND Keypad, "'^LDT-1,1,0,0,0'"`
	Sets the column type for the data list located at address 1. The column type starts at column 1, the first column is Text, the second and third columns are also Text.

Data List Commands (Cont.)	

^LDL	Modifies the data in a single column field. This can be used to load a data list that has long text fields.
	Syntax:
	`"'^LDL-<list address>,<column>,<uniflag>,<primary data>,<new cell data>'"`
	• Variables:
	• list address = address where data resides
	• column = the starting column number; numbering starts at 1
	• uniflag = indicates UniCode; 0 - No UniCode, 1 - Uses UniCode
	• primary data = the "key" data column. The information in this column provides each row with its uniqueness.
	• new cell data = data information for a single field or "cell"
	Example:
	`SEND_COMMAND Keypad, "'^LDL-1,1,0,Entry5,Music'"`
	The field located in column 1, in the row with the primary data "Entry5" and in the data list located at the address of 1 is a text value of Music.
	Note the following rules apply:
	• Leading and trailing spaces are ignored before and after opening and closing double quotes.
	• Double quotes must be the first non-space character after the previous delimiter (,) and the last non-space character before the following delimiter (or end of command).
	• Within double quotes, the backslash (\) is used as an escape character. This is to allow double quote literals within the string bounded by double quotes. When a backslash is parsed, the next character is read as a literal value and the backslash is discarded. There are 2 cases in which you would use the backslash to escape a double quote literal within the field, to escape another backslash (commas do not need to be escaped).
	• Any data field that has a double quote literal as its first character MUST use double quotes to delimit the field, then use the backslash to escape the double quote literal.
	• List box commands contain comma-delimited fields, but you can use commas within the fields. Use double-quotes to surround fields in which commas are needed.

Command Structure List View Commands

Command Structure List Commands	

^LVO	Syntax:
	`"'^LVO-<view address>,<sort>'"`
	Variables:
	• view address = the address of the view definition
	• sort:
	Bit 0x0001 - Sort
	Bit 0x0002 - Reverse
	Bit 0x0040 - Filter
	Reverse bit (0x0002) reverses the list from whatever order it is currently in. When used on a sorted list, it results in a reverse sort. When used on a reverse sorted list, it results in a forward sorted list. In most cases, the reverse bit should not be used alone, but should be used in combination with the sort bit (0x0003) such that it always results in a reverse sorted list.
	Possible values for the sort field:
	• 0 = None
	• 1 = Forward Sort
	• 2 = Reverse the current list ordering (may or may not be sorted)
	• 3 = Reverse Sort
	• 4 = Filter
	• 5 = Forward Sort + Filter
	• 6 = Reverse current + filter
	• 7 = Reverse sort + filter
	Example:
	`SEND_COMMAND Keypad, "'^LVO-1,7'"`
	Displays the data list according to the view definitions located at address 1 and filters and reverse sorts the list.

^LVL	Data list; set the data list displayed.
	Syntax:
	`"'^LVL-<view address>,<list port>,<list address>'"`
	Variables:
	• view address = the address of the view definition
	• list port = port where list resides
	• list address = address where data resides
	Example:
	`SEND_COMMAND Keypad, "'^LVL-5,2,1'"`
	Sets the data list viewed to the information located at port 2, address 1 and displays it according to the view definitions located at address 5.

^LVP	Set position; display a new position.
	Syntax:
	`"'^LVP-<view address>,<index>'"`
	Variables:
	• view address = the address of the view definition
	• index = the row number in sequential order; numbering starts at 1
	Example:
	`SEND_COMMAND Keypad, "'^LVP-5,3'"`
	Sets the display position starting at the third row and displays it according to the view definitions located at address 5.

Command Structure List Commands (Cont.)	

^LVM	Move; display a new position.
	Syntax:
	`"'^LVM-<view address>,<offset>'"`
	Variables:
	• view address = the address of the view definition
	• offset = + / - numeric display shift
	Example:
	`SEND_COMMAND Keypad, "'^LVM-2,-4'"`
	Shifts the display -4 and displays the list according to the view definitions located at address 2.

^LVS	Sort; sets column order for sorting. Update must be called for changes to take effect.
	Syntax:
	`"'^LVS-<view address>,<column>,<column>,...'"`
	Variables:
	• view address = the address of the view definition
	• column = the starting column number
	Example:
	`SEND_COMMAND Keypad, "'^LVS-3,5,2,1'"`
	Sets the column sort order to column 5 first, then column 2 and then column 1. The data list is displayed according to the view definitions located at address 3.

^LVC	Column display order; sets the table column each view column displays.
	Syntax:
	`"'^LVC-<view address>,<column>,<column>,...'"`
	Variables:
	• view address = the address of the view definition
	• column = the column number to display
	Example:
	`SEND_COMMAND Keypad, "'^LVC-3,5,2,1'"`
	Sets the column display order to column 5 first, then column 2 and then column 1. The data list is displayed according to the view definitions located at address 3.

^LVF	Filter; sets what column to use and what string to compare.
	Setting column to 1 or data to none makes the filtered ordering the same as sorted ordering. Update must be called for changes to take effect.
	Syntax:
	`"'^LVF-<view address>,<uniflag>,<column>,<search data>'"`
	Variables:
	• view address = the address of the view definition
	• uniflag = indicates UniCode; 0 - No UniCode, 1 - Uses UniCode
	• column = the starting column number; numbering starts at 1
	• search data = the data on which to filter
	Example:
	`SEND_COMMAND Keypad, "'LVF-1,0,2,Smith'"`
	• Filters list based on column 2 such that only those rows whose column 2 contains Smith are displayed.
	• The data is displayed according to the view definitions located at address 1.
	• Filter is case sensitive.

Command Structure List Commands (Cont.)	

^LVU	Update; this will update the view to any sort, filter, or list data changes.
	Syntax:
	`"'^LVU-<view address>'"`
	Variables:
	• view address = the address of the view definition
	Example:
	`SEND_COMMAND Keypad, "'LVU-3'"`
	Updates the data list and displays it according to the view definitions located at address 3.
	***Note**: This must be called after changes to list data.*

Creating a Dynamic List Data Table

Dynamic List Data is provided to the associated List Box Button by the NetLinx Code running on the NetLinx Master that the panel is connected to.

1. Use Data List Commands to define List Data in your NetLinx Code.
2. Attach the Dynamic List Data Table to a List Box Button

The following code example illustrates using Data List Commands to define a listing of music tracks to display on the associated List Box Button:

```
DEFINE_DEVICE
Keypad = 11001:1:4
Keypad2 = 11001:2:4
KeypadMusic = 11001:10:4

DEFINE_EVENT
BUTTON_EVENT[Keypad,5]

{
  PUSH:
  {
    //Deletes any existing data list at address 1
    SEND_COMMAND Keypad, "' ^LDD-1'"

    //Creates new 5-column data list at port 1, address 1 named "my music"
     SEND_COMMAND Keypad, "' ^LDN-1,1,5,my music'"


    //Specifies column types for the data list at address 1 starting at column 1
    SEND_COMMAND Keypad, "' ^LDT-1,1,0,0,0,0,3'"

    //Adds rows to the data list at address 1
    SEND_COMMAND Keypad, "' ^LDA-1,0,01,The Shins, Chutes Too Narrow, "Kissing the Lipless",
     "10,1"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,02,The Shins, Chutes Too Narrow, "Mine''s Not a High
     Horse",     "10,2"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,03,The Shins, Chutes Too Narrow, So Says I,"10,3"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,04,The Shins, Chutes Too Narrow, Young Pilgrim, "10,4"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,05,The Shins, Chutes Too Narrow, Saint Simon, "10,5"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,06,The Shins, Chutes Too Narrow, Fighting in a Sack,
     "10,6"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,07,The Shins, Chutes Too Narrow, Pink Bullets, "10,7"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,08,The Shins, Chutes Too Narrow, Turn a Square,"10,8"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,09,The Shins, Chutes Too Narrow, Gone for Good, "10,9"'"
    SEND_COMMAND Keypad, "' ^LDA-1,0,10,The Shins, Chutes Too Narrow, Those to Come,"10,10"'"
    //Sets the column number (4) to display in the view with address 2
    SEND_COMMAND Keypad, "' ^LVC-2,4'"
```

```
    //Updates the view at address 2
    SEND_COMMAND Keypad, "' ^LVU-2'"
  }
}
//Sort the list by title instead of Track number
BUTTON_EVENT[Keypad,6]

{
  PUSH:
  {
    //Set the sort order for view address 2. The 1 indicates forward sort.
    SEND_COMMAND Keypad, "' ^LVO-2,1'"

    //Set the column of the list on which to base the sort of the data displayed
    //at view address 2 (in this case column 4 which contains titles)
    SEND_COMMAND Keypad, "' ^LVS-2,4'"

    //Updates the view at address 2
    SEND_COMMAND Keypad, "' ^LVU-2'"
  }
}
//Sort the list by Track number instead of title
BUTTON_EVENT[Keypad,7]

{
  PUSH:
  {
    //Set the sort order for view address 2. The 1 indicates forward sort.
    SEND_COMMAND Keypad, "' ^LVO-2,1'"

    //Set the column of the list on which to base the sort of the data displayed
    //at view address 2 (in this case column 1 which contains track numbers)
    SEND_COMMAND Keypad, "' ^LVS-2,1'"
    //Updates the view at address 2
    SEND_COMMAND Keypad, "' ^LVU-2'"
  }
}
BUTTON_EVENT[KeypadMusic,1]
BUTTON_EVENT[KeypadMusic,2]
BUTTON_EVENT[KeypadMusic,3]
BUTTON_EVENT[KeypadMusic,4]
BUTTON_EVENT[KeypadMusic,5]
BUTTON_EVENT[KeypadMusic,6]
BUTTON_EVENT[KeypadMusic,7]
BUTTON_EVENT[KeypadMusic,8]
BUTTON_EVENT[KeypadMusic,9]
BUTTON_EVENT[KeypadMusic,10]
{
  PUSH:
  {
    SEND_COMMAND Keypad2, "'^TXT-1,0,[Track ',itoa(BUTTON.INPUT.CHANNEL),']'"
```

Attaching a Dynamic List Data Table to a List Box Button

Once you have created a List Box Button, and defined List Data in your NetLinx Code (with Data List Commands), you are ready to associate the List Data Table to the List Box Button. It is this association that allows the data in the List Data to be displayed on the List Box Button.

1. In the Design View window, select the List Box Button that you want to associate with a List Data Table.
2. In the General tab of the Properties Control Window, click inside either the List Table Port or the List Table Address fields. Clicking inside these fields enables the browse (...) button. Click this button to access the Attach Table To List Box dialog.
3. Enter the *Table Port* and *Table Address* of the dynamic List Table.
4. Click **OK** to save your changes and close the dialog.

Example: Creating a Static List Box for a MIO-R4

To begin, a few rules/recommendations when using list boxes:

- One list box per page.
- Do not use list boxes on popup pages.
- List Box items do not support feedback. They provide a channel push and/or generate a page flip.

Step 1 - Select the List Box Draw Tool

Select the “List Box Draw Tool” from the Edit menu (FIG. 307):

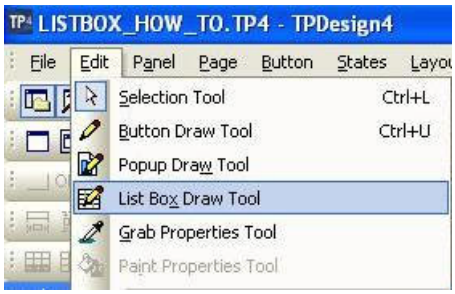


FIG. 307 Edit > List Box Draw Tool

Step 2 - Draw a List Box

This will represent the first element in your list box. In this example, the first row is drawn (FIG. 308):

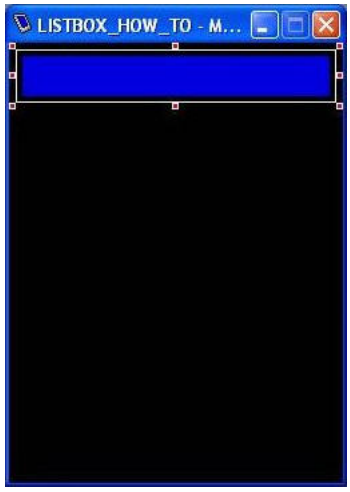


FIG. 308 Draw a List Box

Step 3 - Set the Properties of the Elements In Your List Box

The important thing to pay attention to is the “List Row Height”, and the width of the first element if you plan on displaying multiple rows and columns.

The R4 display is 320 x 240. When designing the list box you must decide how many rows to display, and calculate what height is appropriate, for that number of rows.

Example: If you want to display 5 rows at a time, you can have the height of each row at a maximum of 64.

If you use “List Row Padding” (the space between rows), that number also must be added to each “List Row Height” when calculating the overall height. List Row Padding is set to 7, List Row Height is 64. Total height of each row, in the image below, is 71. This means that the maximum number of rows, that will fit, is 4 (FIG. 309).

FIG. 309 Set the Properties of the Elements In Your List Box

Step 4 - Enable the “List Box Tools” Toolbar

With the “List Box Tools” toolbar, you can add, or remove, rows and columns in the list box (FIG. 310):

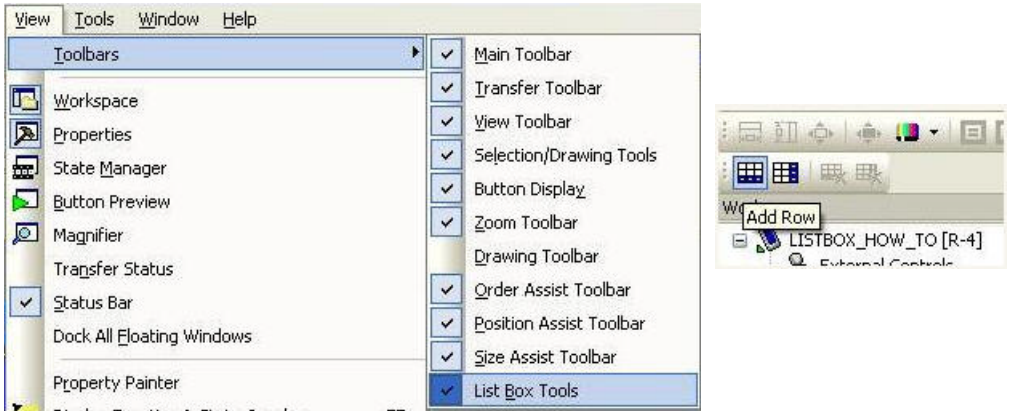


FIG. 310 View > Toolbars > List Box Tools

Step 5 - Create a List Table

Now it's time to create a List Table. A List Table contains the static data that will populate the list box (FIG. 311).

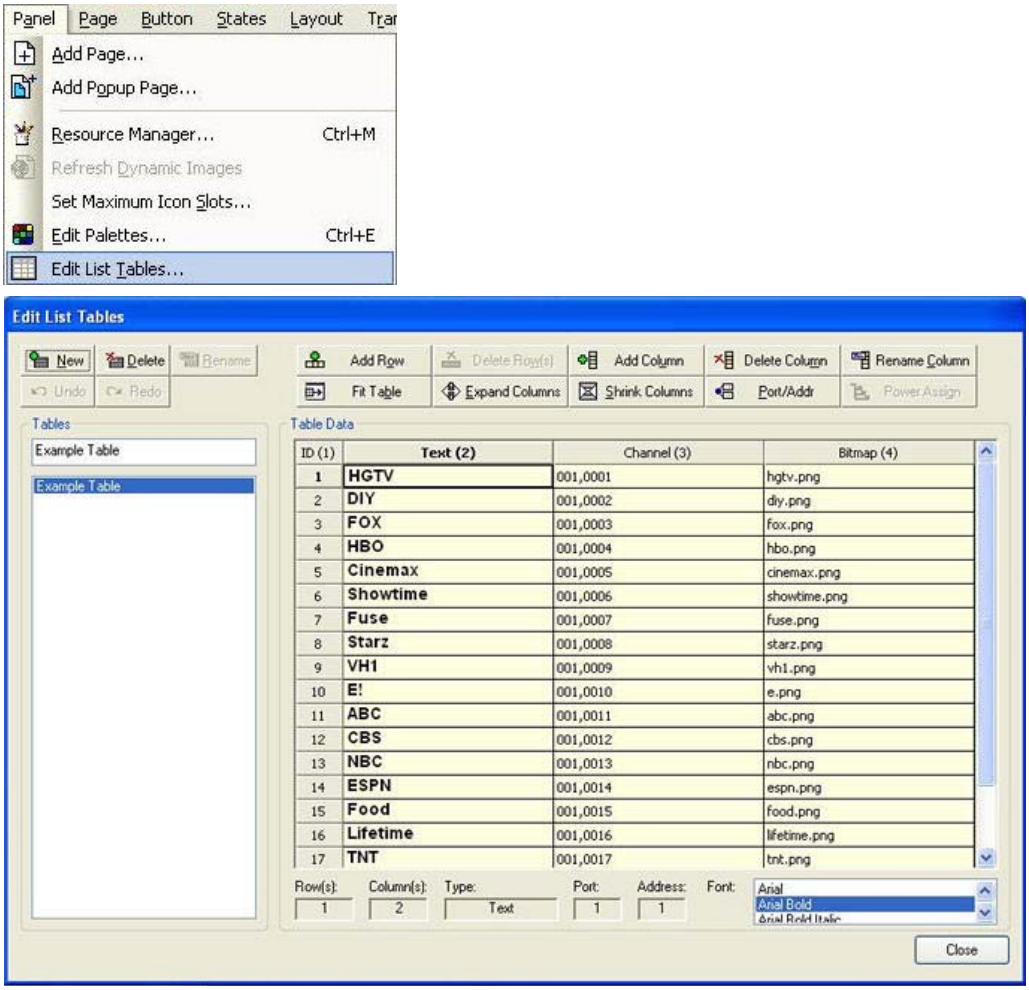


FIG. 311 Panel > Edit List Tables & Edit List Tables dialog

Step 6 - Provide a name for the Table

1. Set the number of columns (2 is the default, as column 1 is required and list the row #).
2. Set the number of rows.
3. Give the List Table a port # and address #. This will be used when referencing which List Table will populate the list box.

All of these settings can be edited once the List Table is created (FIG. 312).

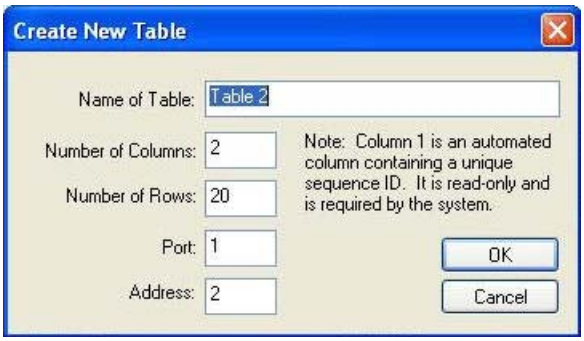


FIG. 312 Create New Table dialog

Step 7 - Set the Properties Of Each Column In the List Table.

There can be multiple columns set to type “Text”, but there can only be one of each of the other 4 types: *Bitmap*, *Icon Slot*, *Channel Code*, *Page Flip* (FIG. 313).

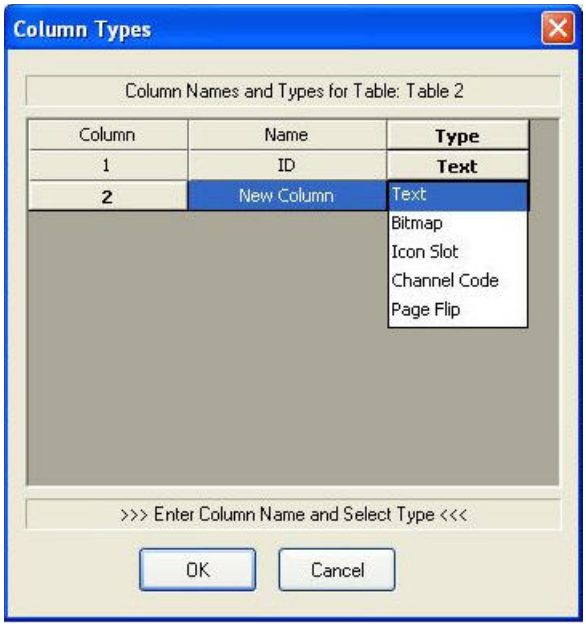


FIG. 313 Column Types dialog

Step 8 - Link the List Table to the List Box

Once the List Table is finished, the final step is to link the List Table to the list box.

1. Set the “List Table Port” and “List Table Address” to the port/address of the List Table that was created in Step 6.
2. Set the “Column Display Order”. This tells the list box what columns need to be displayed and in what order. In the image below we are displaying column 4, of the List Table, in column 1 of the list box and column 2, of the List Table, in column 2 of the list box (FIG. 314).

FIG. 314 Link the List Table to the List Box

Working With Properties

Overview

The Properties Window is typically located on the right side of the screen (although you may move it anywhere you like) and is used to view/edit page, popup page and button properties, and to view/edit the states information associated with each element in your project.

Select **View > Properties** (or click the toolbar button) to display the Properties window.

The Properties Window contains three tabs: *General*, *Programming* and *States* (FIG. 315).

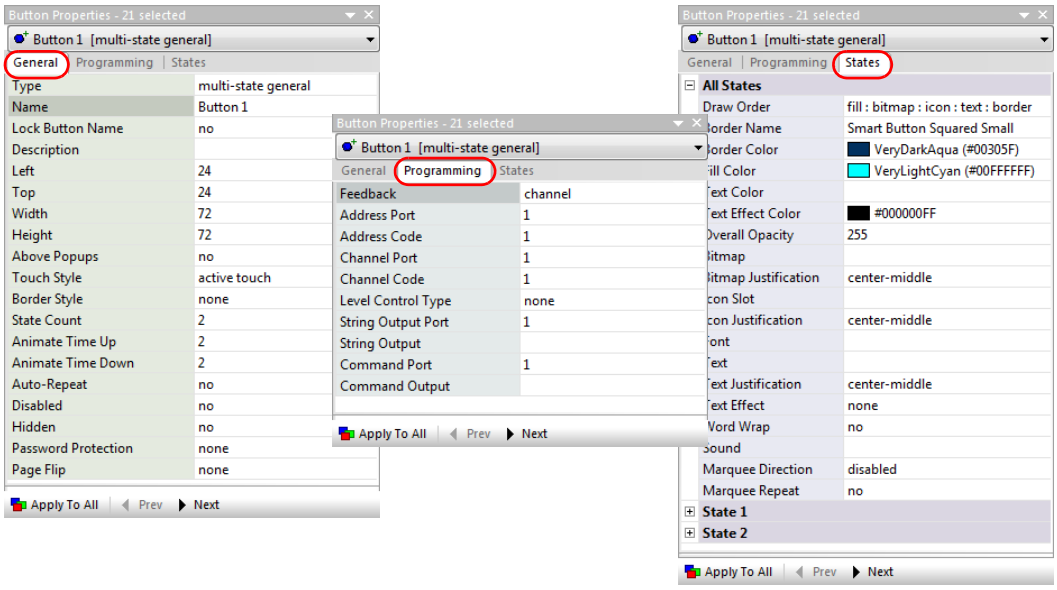


FIG. 315 Properties Window - General, Programming and States tabs

Drag and Drop support

Properties from the General tab and states from the States tab can be dragged and dropped onto the Design View (to Buttons on the main Page, or the Page itself). The selected property is automatically applied to *all states* of the drop target (whether a button or the page itself). General and State properties can also be copied and pasted to a Design View using standard copy/paste menu and keyboard mechanisms.

Another feature of the Properties window (all tabs) is that you can click on any value in the right column, and drag it to another field. When you release the mouse button, the value is copied to the new location. With an item selected, the cursor will change to indicate any fields that cannot accept the selected value, and if the selected value is out of the acceptable range for a target field, TPD4 alerts you with an error dialog, and the original value is left unchanged.

Grab Properties and Paint Properties Tools

The *Grab Properties* and *Paint Properties* tools work together with the *Property Painter* dialog to allow you to *grab* (copy) the properties of a selected Button, Page or Popup Page, and *paint* (copy) them onto another Button, Page or Popup Page:

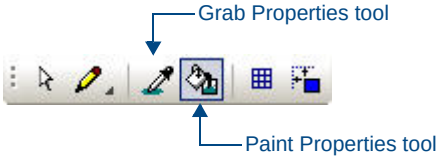


FIG. 316 Grab Properties and Paint Properties toolbar buttons

Grabbing Properties (via the Grab Properties Tool)

Use the *Grab Properties* function to copy a specific set of properties from a selected design element (Button, Page or Popup Page). Once a property set has been *Grabbed*, it can be applied (*Painted*) to another design element in the project. This technique can save time as well as promote consistency in the TPDesign4 project.

1. Select **Grab Properties Tool** from the Edit menu, the Design View context menu, or click the toolbar button (see FIG. 316) to activate the *Grab Properties* tool. Note that the cursor icon changes to reflect this tool selection (FIG. 317).

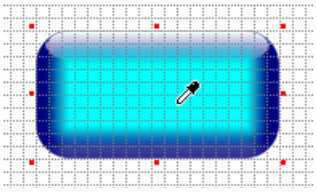


FIG. 317 Grab Properties Tool

2. Click on a design element in a Design View window to *grab* the properties and settings of the selected design element. This action invokes the *Property Painter* dialog (also accessible via the View menu).

   The following example (FIG. 318) shows the *Property Painter* dialog invoked as a result of selecting a Multi-State General button with 12 states:

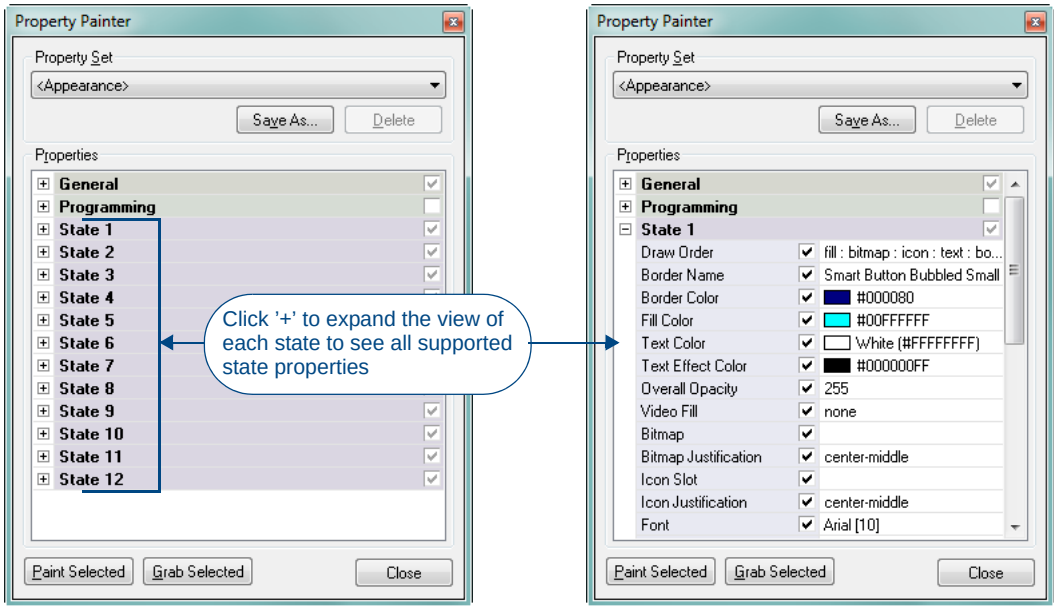


FIG. 318 Property Painter dialog

3. Select the Properties of the selected design element that you want to grab:
   - Select one of the pre-defined Property Sets from the *Property Set* drop-down menu:

     Select ***<Appearance>*** *to grab all appearance-oriented properties.*

     Select ***<Border, Fill and Text Colors>*** *to grab only the color settings for border, fill and text colors.*
   - Manually click to select or se-select properties. Note that custom Property Sets can be saved via the *Save As* button.

4. With a set of properties selected (and with the design element selected), click **Grab Selected**.

Once a Property Set has been grabbed, it can be applied (Painted) to another design element, via the *Paint Properties* tool.

Painting Properties (via the Paint Properties Tool)

1. With a Property Set selected in the Property Painter dialog (see the *Grabbing Properties (via the Grab Properties Tool)* section on page 234), select **Paint Properties Tool** from the Edit menu, the Design View context menu, or click the toolbar button (see FIG. 316 on page 233) to activate the *Paint Properties* tool. Note that the cursor icon changes to reflect this tool selection (FIG. 321).

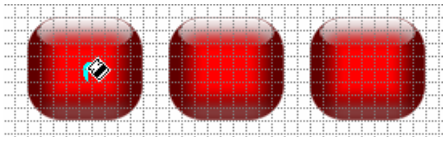


FIG. 319 Paint Properties Tool

2. Click on each design element that you want to Paint using the active Property Set in the Property Painter dialog.

   FIG. 320 shows three buttons being Painted with the *Border, Fill and Text Colors* from the button shown in FIG. 317 on page 234:

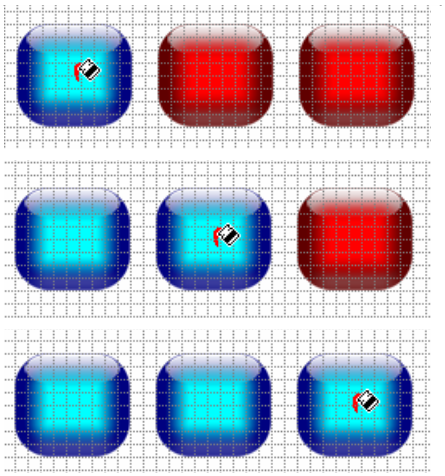


FIG. 320 Paint Properties Tool - Example Usage

Saving a Properties Set

Use the **Save As** option under *Property Set* in the *Property Painter* dialog to save a set of Properties (but not their values) that can be recalled later.

Using the Apply To All Option

The **Apply To All** toggle button is located at the bottom of the Properties window (FIG. 321).

FIG. 321 Properties Window - Apply To All button

Use the *Apply to All* option to set button properties to edit multiple buttons simultaneously.

This option works on multiple button selections, but not on multiple states for a single button.

- To make state-oriented changes across multiple states, select the states that you want to edit and they will appear listed in the States tab of the Properties window.
- To make changes that affect all states on a button at once, use the **All States** option in the States tab (located directly above the other listed states for the selected button).

Using the Prev and Next Buttons

The **Prev** and **Next** buttons, located at the bottom of the Properties window (next to the *Apply to All* button) are activated only when more than one button is selected on a page, and the Apply To All button is not depressed (in its active state). These buttons allow you to quickly edit the selected buttons individually. Hold down the Shift key and click to select multiple buttons (FIG. 322).

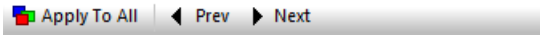


FIG. 322 Properties Window - Prev and Next buttons

- If the **Apply To All** button is *not* depressed, and you select more than one button to act on, the **Prev** or **Next** buttons will activate on the Properties window.

  Also note that while you have multiple buttons selected, only one of them has the edit focus at any given time. Use the **Prev** and **Next** buttons to cycle through the selected buttons to view each button's properties in the Properties window. The button represented in the Properties window is the one with edit focus. All modifications are always on the button with the edit focus.
- If the **Apply To All** button *is* depressed and you select more than one button to act on, the **Prev** or **Next** buttons are unavailable and every selected button has the edit focus. You may also notice that one or more (if not all) of the property values in the grid are blank. The only values that will display in the grid while the **Apply To All** button is depressed are those values that are common among all selected items. Typing in or changing a value in any property box will immediately affect all selected buttons, provided that the change can be applied to them all. In the event that a value is appropriate for one (or more) buttons but inappropriate for others, you will see a message that states that the value was only applied to those buttons for which it was valid.

When you have multiple buttons selected, only one of them has the edit focus at any given time. Use the Prev and Next buttons to cycle through the selected buttons to view each button's properties in the Properties window. The button represented in the Properties window is the one with edit focus. All modifications are always done on the button with the edit focus.

Searching For Properties

Use the *Find* dialog to search for any button property value either within the currently open Page, or across the entire Project. You can specify to search for any General or State button property.

To search for properties:

1. Select **Edit > Find** (or click the toolbar button) to open the *Find* dialog (FIG. 323).

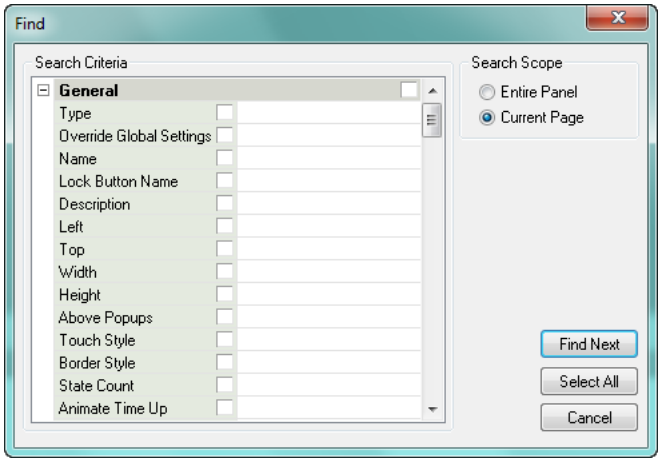


FIG. 323 Find dialog

2. In the *Search Criteria* table, select the button properties to use as the search criteria. You can include any General or State button property as search criteria. General and State properties are separated into two sections (labeled as *General* and *States*).

- Scroll down to view all of the available button properties that can be used as search criteria.
- Click the minus symbol (-) next to the *General* and *States* headings to collapse the sections. Click the plus symbol (+) to expand the views.
- To select all General button properties, click in the checkbox next to the *General* heading; to select all State-oriented button properties, click in the checkbox next to the *States* heading.

3. In the *Search Scope* area, select either **Entire Panel** or **Current Page**.
   - If the scope of the search is set to *Entire Panel*, the *Select All* button is disabled, in which case you can use the **Find Next** button to cycle through the pages that contain buttons whose values match the search criteria.
   - If the scope of the search is set to *Current Page*, use the **Find Next** button to search the current page only, based on the specified criteria and scope.
4. When the first instance of the criteria is found, the *Find In Page dialog* is compressed to only show the buttons that satisfy the search criteria, and the first button found that satisfies the search criteria is selected in the Design View.
   - Select **Find Next** to continue the search.
   - Select **Select All** to close the Find dialog and select every button that meets the criteria.
   - The program will inform you if no buttons are found that match the search criteria.

NOTE

When you select a General as well as a State-oriented search criteria, only buttons that match the General criteria, and within that set, the states that match the State criteria will be candidates for the replace operation. For example, if you set the search criteria to include both the Glow-S border style (a General property) and yellow as the Fill Color (a State property), only those buttons with a Border Style of Glow-S are candidates, and within that set of candidates, only those states whose Fill Color is set to yellow satisfy the search criteria.

Searching and Replacing Properties

Use the *Find and Replace* dialog to find and (optionally) replace any property value with another value of your choosing. You can specify the scope of the search to either the currently open Page only, or across the entire Project.

To search and replace properties:

1. Select **Edit > Find & Replace** (or click the toolbar button) to open the *Find and Replace* dialog (FIG. 324).

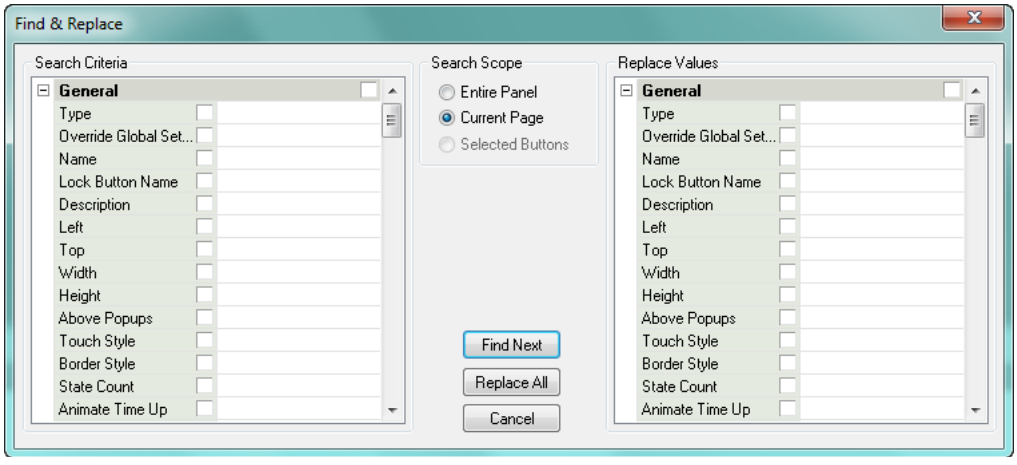


FIG. 324 Find and Replace dialog

2. In the *Search Criteria* table, select the button properties to use as the search criteria. You can include any General or State button property as search criteria. General and State properties are separated into two sections (labeled as *General* and *States*).
   - Scroll down to view all of the available button properties that can be used as search criteria.

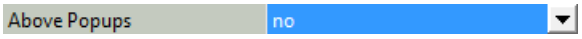
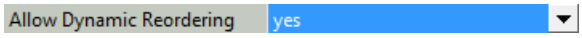
- Click the minus symbol (-) next to the *General* and *States* headings to collapse the sections. Click the plus symbol (+) to expand the views.
- To select all General button properties, click in the checkbox next to the *General* heading; to select all State-oriented button properties, click in the checkbox next to the *States* heading.

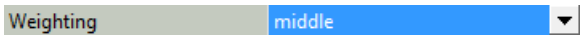
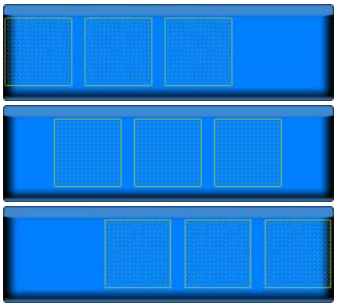
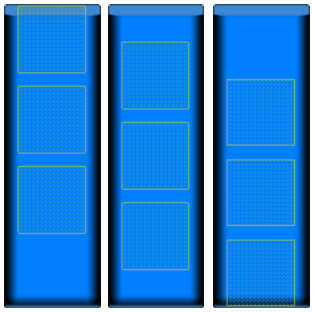
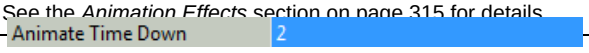
3. In the *Search Scope* area, select either **Entire Panel** or **Current Page**.
   - If the scope of the search is set to *Entire Panel*, the *Select All* button is disabled, in which case you can use the **Find Next** button to cycle through the pages that contain buttons whose values match the search criteria.
   - If the scope of the search is set to *Current Page*, use the **Find Next** to search the current page only, based on the specified criteria and scope.
4. In the *Replace Values* table, select the button properties to use as the replace values. The *Replace Values* do not necessarily have to match the *Search Criteria* (although they may). It is also possible to replace multiple values or establish multiple search criteria.

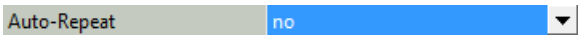
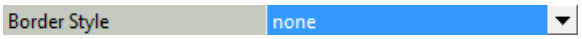
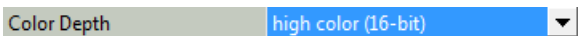
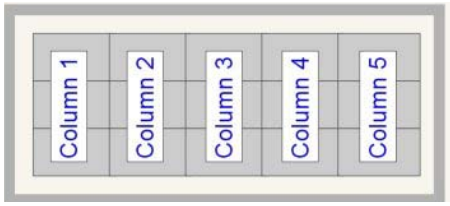
   For example, to change the Border Style on one or more buttons, select **Border Style** in the *Search Criteria* table, then select the particular border style to search for from the drop-down list. Then, select **Border Style** in the *Replace Values* table, and select the desired replacement border style from the drop-down list. Repeat this process for as many other button properties as needed.
5. When the first instance of the criteria is found, the *Find In Page dialog* is displayed, listing the buttons that satisfy the search criteria, and the first button found that satisfies the search criteria is selected in the Design View.
   - Select **Find Next** to continue the search.
   - Select **Replace All** to close the Find dialog select every button that meets the criteria. The program informs you of the number of buttons affected by this change.
   - All replace actions support full Undo / Redo capabilities.
   - The program will inform you if no buttons are found that match the search criteria.

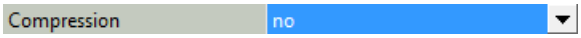
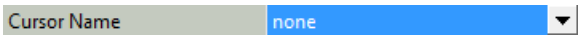
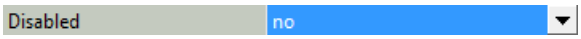
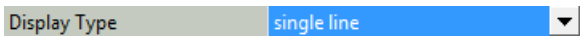
General Properties

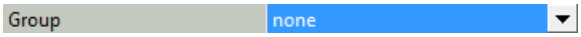
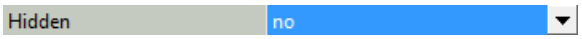
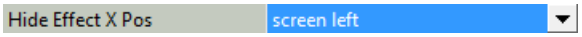
The following table describes all General Properties, accessible in the General tab of the Properties window:

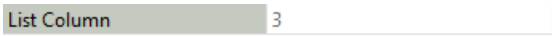
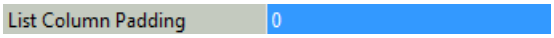
General Properties	
Above Popups	 This option allows you the selected button(s) on a Main page to always remain on top of any popup pages (*Yes/No*, default = *No*). ***Note**: This option is not available for buttons on a popup page.*
Allow Dynamic Reordering	 This option determines wether the Sub-Pages contained within a Scrolling Region can be re-arranged by an end-user (*Yes/No*, default = *No*). Note that with this property enabled, the order in which the user last left the Sub-Pages will be saved to the panel. The new order is maintained across reboots and power cycles. Downloading a new project will reset Sub-Page ordering to the settings in the new project. ***Note**: This property applies only to Sub-Page View buttons. See the Sub-Page View Buttons* section on page 183 *for details.*

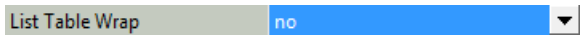
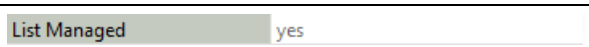
General Properties (Cont.)	
Anchor Position	 Select an Anchor Position option to determine how the Sub-Pages are initially displayed and justified within the Sub-Page View button. ***Note**: This property applies only to Sub-Page View buttons. See the Sub-Page View Buttons* section on page 157 *for details.* The options in this menu depend on the Orientation setting of the selected Sub-Page View button: *For **Horizontal** orientation:*  • *Left*: First sub-page is displayed aligned to the left side of the button. • *Middle*: The middle sub-page is displayed positioned in the center of the button (default setting). • *Right*: Last sub-page is displayed aligned to the right side of the button. *For **Vertical** orientation:*  • *Top*: First sub-page is displayed aligned to the top of the button. • *Center*: The middle sub-page is displayed positioned in the center of the button (default setting). • *Bottom*: Last sub-page is displayed aligned to the bottom of the button. ***Note**: See the Scrolling Regions* section on page 173 *for more on Scrolling Regions.*
Animation Time	 Enter an integer value representing the Page Flip Animation duration in tenths of seconds. Range = 0 to 30 (three second max). ***Note**: This property is available for Panels that support Page Flip Animations.* See the *Animation Effects* section on page 315 for details.
Animate Time Down	 The timer intervals between states as the button animates from the On to the Off state. This value is in 1/100th second increments (default = **2**). ***Note**: This property is available for Multi-State General buttons only.* See the *Animation Effects* section on page 315 for details.

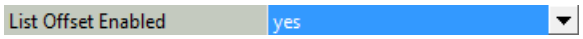
General Properties (Cont.)	
Animate Time Up	 The time intervals between states as the button animates from the Off to the On state. This value is in 1/100th second increments (default = **2**). ***Note**: This property is available for Multi-State General buttons only.* See the *Animation Effects* section on page 315 for details.
Auto-Repeat	 Select wether to apply auto-repeat to the button. Auto-repeat causes the button to constantly cycle through its states (*Yes/No, default = No*). ***Note**: This property is available for Multi-State buttons only.*
Border Style	 To change the Border Style for the selected button, click **Border Style**, and select the desired style from the drop-down list There are several types of border styles to choose from, and they all can all be assigned to both popup pages and buttons. ***Note**: If you don't want a border on the button, select "none" as the border style.* See the *Border Styles* section on page 386 for details.
Color Depth	 Select the color depth to be applied to the button. The options are *high-color (16-bit)* or *true color (24-bit)*. Default = *high-color (16-bit)* This setting should match that of the host PC. ***Note**: This button property is available for Computer Control buttons only.*
Column Display Order	 Enter a string of space-delimited integers to specify the order in which the columns in the List Data Table are displayed in the List Box button, from left to right.  For example, using a List Data Table that contains 5 columns, you could enter (without quotes) "**3 4 5 2 1**" to populate the List Box Button as follows: • Column 1 on the List Box Button will display column 3 from the List Data Table. • Column 2 on the List Box Button will display column 4 from the List Data Table. • Column 3 on the List Box Button will display column 5 from the List Data Table. • Column 4 on the List Box Button will display column 2 from the List Data Table. • Column 5 on the List Box Button will display column 1 from the List Data Table. ***Note**: This property is enabled only for List Box Buttons, when a List Data Table is assigned, and a List Table Address and Port is assigned.* See the *List Box Buttons* section on page 195 for details.

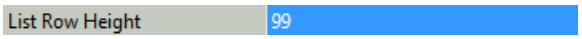
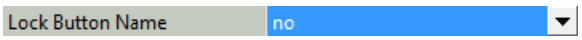
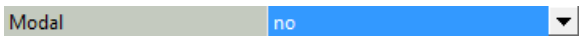
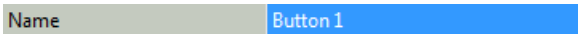
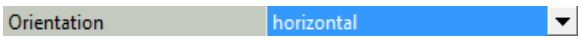
General Properties (Cont.)	
Column Sort Order	 Specifies the column sort order for the list table data before populating the list box control. The value is a space delimited string of integers representing columns in the List Data Table. One or more columns can be specified. For example, if the user wishes to sort the table based on column 1, the value would be "1". If however the user wishes the table data to be sorted by column 3, then column 1, and finally column 5, the value would be (without quotes, with a space between each number) "3 1 5". Multiple column sorting is useful when a column contains duplicates or more than one cell is empty. ***Note:*** *This property is enabled only for List Box Buttons, when a List Data Table is assigned, and a List Table Address and Port is assigned.* See the *List Box Buttons* section on page 195 for details.
Compression	 Select wether to compress the image on the button (*Yes/No*, default = *No*). ***Note****: This button property is available for Computer Control buttons only.*
Cursor Color	 Specify a color for the Joystick cursor. Click the browse (...) button to select a color from the *Colors* dialog. ***Note****: This button property is available for Joystick buttons only.*
Cursor Name	 Select the desired visual style for the joystick cursor. Click the down arrow to select from the list of available cursor types. ***Note****: This button property is available for Joystick buttons only.*
Description	 Use this text field to enter a general or functional description for this button. Click the browse (...) button to open the Enter Text dialog, where you can type the description.
Disabled	 Indicates how the selected button will be rendered. If the button is set as *Disabled* (select **Yes** from the drop-down), the button will be rendered by the panel in a subdued state (*default* = ***No***).
Display Type	 Click to select the display type to be invoked by this Text Input button (*single line* or *multiple lines*). The default is *single line*. ***Note****: This button property is available for Text Input buttons only.*
Flyout Text	 Click to enter the text to be displayed by this Flyout (external) button. Text entered here will appear in the corresponding flyout menu tab. This button property is available for specific external pushbuttons only, and only as a Global Setting. For example, at the time of this writing, only the four external buttons along the left side of the MVP-9000i support Flyout Text. Note that the Flyout Text property is only presented when one of these buttons is selected in the Global External Controls view (double-click **External Controls** in the Workspace Window). See the *Setting Global Properties for External Controls* section on page 162 for details.

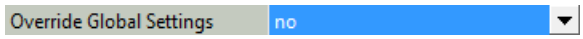
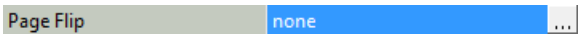
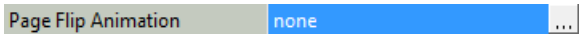
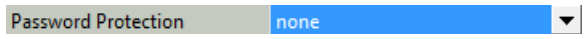
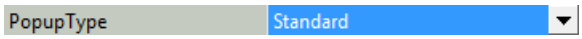
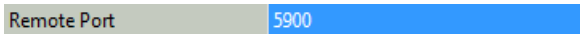
General Properties (Cont.)	
Group	 Use this field to add the selected Popup Page to a specific Popup Page Group. ***Note**: This property is available for Standard Popup Pages only.* • To add a group, type any value in the **Group** field. This will create a corresponding folder under the Popup Pages folder in the Workspace Navigator (Pages tab). • To place a popup page in a particular popup group, simply drag the desired popup pages into the desired group folder. • Click the browse (...) button to open the *Enter Text* dialog, where you can type the description.
Height	 Size values. The **Height** rows indicate the vertical dimensions of the selected button, in pixels. • You can edit these fields to apply specific dimension info for the button. • Note that if you select the button and manually resize it on the page, these values constantly update to indicate the current dimensions.
Hidden	 Indicates wether or not the selected button is displayed on the panel. If the button is set as *Hidden* (select **Yes** from the drop-down), the button will disappear when transferred to the panel (*default* = *No*).
Hide Effect	 This property allows you to apply a transition effect to the popup page, to be invoked when the popup is closed (hidden). ***Note**: This property is available for Popup Pages only.*
Hide Effect Time	 This property allows you to specify the total amount of time it will take to execute the selected *Hide* effect, measured in 1/10th-second increments. Use this option to synchronize your popup page transition effects. ***Note**: This property is available for Popup Pages only.*
Hide Effect X/Y Pos	 Measured in pixels, the Hide Effect X/Y Pos (position) fields allow you to specify the starting point on the page for the selected *Slide* Hide Effect. Depending on the *Slide* Hide Effect selected, the **Hide Effect X Pos.** or **Hide Effect Y Pos**. option may become available: ***Note**: This property is available for Popup Pages only.* • If you have selected a left or right slide effect (including slide/fade effects), you can set the X position for the start of the hide effect (range = 0 - 9999). The default is 0 (the left edge of the page). In some cases, depending on the page design and graphics, you may decide to start the slide at some other point than the absolute left edge of the page. • If you have selected a top or bottom slide effect (including slide/fade effects), you can set the Y position for the start of the hide effect (range = 0 - 9999). The default setting is 0 (top edge of the page).

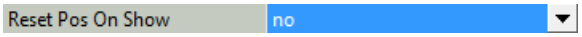
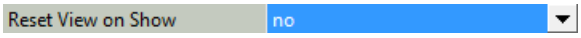
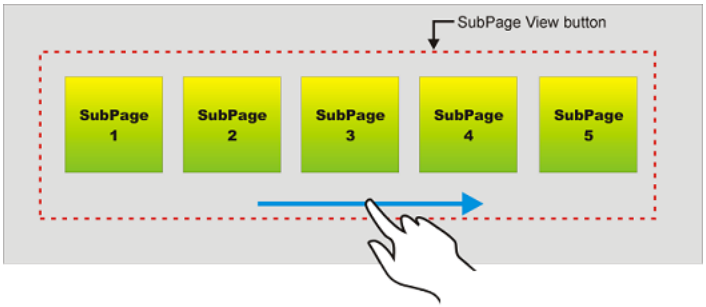
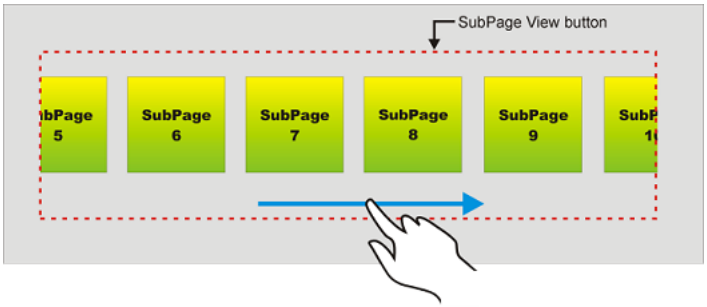
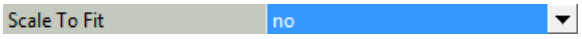
General Properties (Cont.)	
Input Mask	 This field allows you apply a mask to user input on the panel. ***Note**: This button property is available for Text Input buttons only.* An input mask allows you to force the user to enter the correct type of characters (numbers vs. characters), suggest a proper format with fixed characters, to change or force character case, to create multiple logical fields that act as a single field, to specify a range of characters / numbers for each field, to set the input as required or optional, and/or fill the field from the right or the left. The following sections describe the various types of input masks that can be used: • Input Mask Characters - page 252 • Input Mask Ranges - page 253 • Input Mask Next Field Characters - page 253 • Input Mask Operators - page 253 To define a literal, enter any character other than those shown in the topics above, including spaces and symbols. A back-slash ('\') causes the character that follows to be displayed as the literal character. For example, **\A** is displayed as just **A**.
Left	 Position values. The **Left** and **Top** rows indicate the position of the selected button, in pixels, relative to the upper-left corner of the Design View window. • You can edit these fields to apply specific positioning info for the button. • Note that if you select the button and manually move it around on the page, these values constantly update to indicate the button's current position.
List Column	 An integer value representing the total number of columns in the List Box button. ***Note**: This property is available for List Box buttons only.* ***Note:** This property is read-only and cannot be edited. In unmanaged mode this property is visible (but still read-only) for the unmanaged subordinate buttons. This way you can keep track of which row the button is identified with.* A list box column contains one or more subordinate buttons of the same width, justified vertically. The number of subordinate buttons in a column depends on the number of rows defined for the list box. The width of the first column is determined at creation by the width of the list box control. • At creation, one subordinate button is created automatically. • The maximum number of columns that can be set/created is • **10**, and the minimum is **1**. See the *List Box Buttons* section on page 195 for details.
List Column Padding	 **List Column Padding** - An integer value indicating the number of pixels between columns of buttons. ***Note**: This property is present only when the List Box is in Managed Mode.* See the *List Box Buttons* section on page 195 for details.
List Display	A string formatted as a space-delimited list of table column numbers in a List Box Button that the columns of the List Data Table are assigned to. ***Note**: This button property is available for List Box buttons only, and only when a List Table Port is assigned.* See the *List Box Buttons* section on page 195 for details.

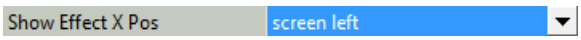
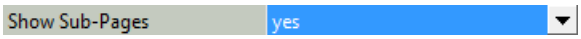
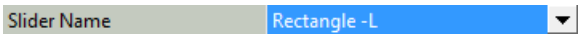
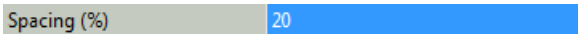
General Properties (Cont.)	
List Table Port	 An integer value representing the port of the List Data Table that the List Box button is attached to. ***Note**: This button property is available for List Box buttons only.* There are two ways to define this property: • One is to edit the property directly by typing the Table Port number of a data table (static or dynamic). • The other way is to press the Browse button (click inside this field to enable), to open the *Attach Table To List Box* dialog. The options in this dialog allow you to select a static table that has already been created for in the project. This dialog will populate both the "List Table Port" and "List Table Address" properties when finished. You may alternatively enter the port/address manually (in the *Table Port* and *Table Address* text fields in the dialog). See the *List Box Buttons* section on page 195 for details.
List Table Address	An integer value representing the address of the List Data Table that the List Box button is attached to. There are two ways to define this property: • One is to edit the property directly by typing the Table Address number of a data table (static or dynamic). • The other way is to press the Browse button (click inside this field to enable), to open the Attach Table To List Box Dialog. The options in this dialog allow you to select a static table that has already been created for in the project. This dialog will populate both the "List Table Port" and "List Table Address" properties when finished. You may alternatively enter the port/address manually (in the Table Port and Table Address text fields in the dialog). ***Note**: This button property is available for List Box buttons only.* See the *List Box Buttons* section on page 195 for details.
List Table Wrap	 This property specifies a behavior for a list box when attached to two or more pages of table data. ***Note**: This button property is available for List Box buttons only.* If the user presses the scroll bar down button, the next page of data will show up in the list box. • When set to "**yes**", List Table Wrap specifies that the list box will "wrap around" and start at the beginning again if the user presses the next page button when the list is at the end of the table data. The same goes for scrolling up. Scrolling past the beginning would wrap back around to the end of the list. In this way, the list becomes cyclical. • If set to "**no**" (*default setting*), beginning and end limits are present for the list box, therefore scrolling would go no further than the beginning or end of the table data. See the *List Box Buttons* section on page 195 for details.
List Filter Column	This property sets the column order for filtering data. ***Note**: This property is enabled only when a List Table Address and Port are assigned.* ***Note**: This button property is available for List Box buttons only.* See the *List Box Buttons* section on page 195 for details.
List Managed	 This display-only field indicates wether the selected List Box Button is in Managed or Unmanaged mode. ***Note**: This button property is available for List Box buttons only.* See the *List Box Buttons* section on page 195 for details.

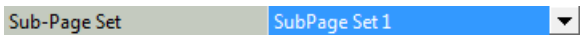
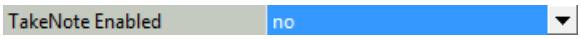
General Properties (Cont.)	
List Offset Enabled	 A flag (*yes/no*) indicating whether an offset of five pixels is applied to the List Box Container all the way around the subordinate buttons of the list box (default = on). It is used so that the List Box Container can be selected via the Design View. When set to no, the subordinate buttons will completely cover the list box container (unless List Row Padding and/or List Column Padding is set to a value greater than 0). This button property is available for List Box buttons only. ***Note**: This property is present only when the List Box button is in Managed Mode.* See the *List Box Buttons* section on page 195 for details.
List Preferred Row	 An integer value designating a particular row in the list box as the preferred row. The List Preferred Row value has the range from 0 to Row Count (default = 0). Zero "0" disables the preferred row functionality. If a row is specified (greater than 0) then the row has some special properties. • First, it can have a different height specification than all the other rows through the Preferred Row Height property. This is useful for Panels like the R4 where the screen is very small. The height of one row bigger than the rest is needed for easy thumb access via the touch screen. • Second, by enabling preferred row all marquee state properties (Marquee Direction and Marquee Repeat) defined for each column are now exclusive to the preferred row. Marquee state properties are column-based properties. So even though a column's state has marquee enabled, only the cell in the preferred row implements the marquee feature on the panel. ***Note**: This button property is available for List Box Container buttons only.* See the *List Box Buttons* section on page 195 for details.
List Preferred Row Height	 An integer value indicating the height of the preferred row in the list box. Only the preferred row can have a separate height specification. All other rows are specified the same height. ***Note**: This button property is available for List Box buttons only.* ***Note**: This property is present only when the List Box is in Managed Mode, and the Preferred Row is greater than zero "0".* See the *List Box Buttons* section on page 195 for details.
List Row	 An integer value representing the total number of rows in the List Box button. A list box row contains one or more subordinate buttons of the same height, justified horizontally. The number of subordinate buttons in a row depends on the number of columns defined for the list box. The height of the first row is determined at creation by the width of the list box control. ***Note**: This button property is available for List Box buttons only.* • At creation, one subordinate button is created automatically. • The maximum number of rows that can be set/created is **50**, and the minimum is **1**. • This button property is available for List Box buttons only. ***Note**: This property is read-only and cannot be edited. In unmanaged mode this property is visible (but still read-only) for the unmanaged subordinate buttons. This way you can keep track of which row the button is identified with.* See the *List Box Buttons* section on page 195 for details.

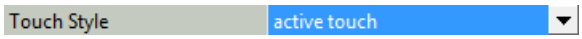
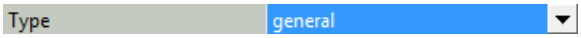
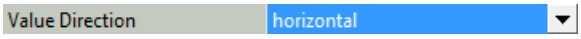
General Properties (Cont.)	
List Row Height	 An integer value indicating the height (in pixels) of all the rows in the list box (i.e. the height of all the buttons) excluding the preferred row. ***Note**: This button property is available for List Box buttons in Managed Mode only.* See the *List Box Buttons* section on page 195 for details.
List Row Padding	 An integer value indicating the number of pixels between rows of buttons. This button property is available for List Box buttons only. ***Note**: This property is present only when the List Box button is in Managed Mode.* See the *List Box Buttons* section on page 195 for details.
List Selectable	This property is a value representing the current selection type: *single* or *multi*. ***Note**: This button property is available for List Box buttons only.* See the *List Box Buttons* section on page 195 for details.
Lock Button Name	 This option controls how the name of the selected button is managed by the program (*Yes/No*, default = *No*). When new buttons are created, by default the buttons are automatically given a sequential two-part name composed of the button *number* (relative to the number of buttons already created in the Project) and button *type*, separated by a colon (i.e. *"Button 1: general*", "*Button 2: multi-state general*", etc). See *Generated Button Names* section on page 129 for details.
Max Text Length	 Use this field to specify the maximum number of characters allowed to be entered via this button. The range is 0-2000 (default = 0). ***Note**: This button property is available for Text Input buttons only.*
Modal	 This setting (**Yes/No**) controls the user's ability to press a button outside the boundaries of the popup page when the popup page is visible. ***Note**: This property is available for Popup Pages only.*
Name	 To give the button a specific name other than the default *Button/Popup 1*, *Button/Popup 2*, *Button/Popup 3* etc., click *Name* in the Properties Control Window (General tab) to activate the text field, where you can type the new name. ***Note**: You must use a unique name for each button, page and popup page, and you cannot apply the Job name (set in the New Project Wizard) to a page.* ***Notes on naming Popup Pages:*** *If the popup page name starts with an underscore (ex: " _sources"), it will be always be displayed on top.* • If you rename the popup page without the underscore, it will act normally. • If you call 2 popups with the underscore, the last one called will be on top. *System Template Pages always use a double underscore prefix.* • A copied template page will have a single underscore prefix. • Note that the single underscore applies the effect of "always on top".
Orientation	 Select the orientation for the selected Sub-Page View button (Horizontal/ Vertical, default = *Horizontal*). ***Note**: This property applies only to Sub-Page View buttons.*

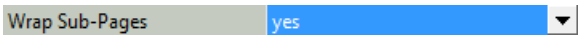
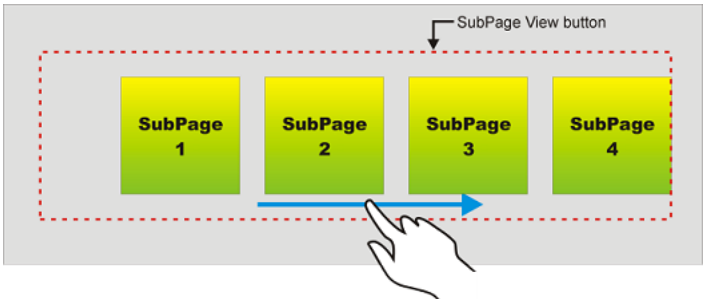
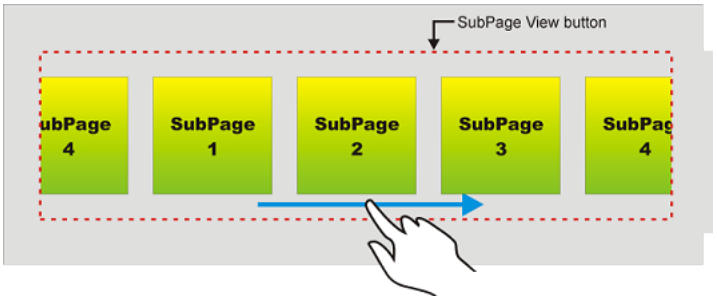
General Properties (Cont.)	
Override Global Settings	 This option (Yes/No) determines if the button (or Gesture) performs the global action defined for the button, or if its behavior is specific to this page. If set to **Yes**, the remainder of the external buttons (or Gesture) properties will indicate their global values as read-only (default = **No**). ***Note**: This option is only available when editing Page-Specific properties for an External Control or Gesture.* • If the External Controls View is accessed by clicking on the External Controls entry in the Workspace Window, the settings made apply globally. • If the External Controls View is accessed by selecting **Page > Show External Controls** (or clicking **Ctrl+B**) with a page active, the settings made apply only to the active page. See the *Setting Global Properties for External Controls* section on page 162 for details.
Page Flip	 **Page Flip** – Use this option to assign a page flip (type and target page) to the selected button(s). Click the browse button (**...**) to open the *Button Page Flip Actions* dialog.
Page Flip Animation	 The MVP-9000i 9" Modero ViewPoint Touch Panel with Intercom supports several Page Flip Animations. Page Flip Animations provide animated transition effects that are used for a Page Flips to further enhance the touch panel UI. ***Note**: Page Flip Animations are not supported for showing/hiding Popup Pages.* Click to open the Page Flip Animation dialog. Use this option to specify a Page Flip Animation to apply to the selected button.
Password	 The password supplied by the designer. ***Note**: This button property is available for Computer Control buttons only.* This password must match the password entered into the PC remote desktop server.
Password Character	 Type a single character to be used as the password to access this Text Input button on the panel. ***Note**: This button property is available for Text Input buttons only.*
Password Protection	 This option allows you to apply password protection to the selected button(s). You can set up to four passwords per panel; use this drop-down list to select which of four possible passwords to apply to the selection (*none*, *password 1*, *password 2*, *password 3*, or *password 4*).
Popup Type	 This setting (*Standard*/*Sub-Page*) sets the Type for the selected Popup Page. This property is available for Popup Pages only. ***Note**: Sub-Page Popups are supported only by Modero X Series panels.*
Remote Host	 The IP or DNS resolvable address of the PC whose desktop is to be displayed. ***Note**: This button property is available for Computer Control buttons only.*
Remote Port	 The port to be used on the PC whose desktop is to be displayed. Default = **5900**. ***Note**: This button property is available for Computer Control buttons only.*

General Properties (Cont.)	
Reset Pos. On Show	 If this option is turned on, the popup page will always appear at the position established during popup page design each time it is displayed. This might be desirable if the popup page contains a button which provides the end user with the ability to move the popup page at will. ***Note**: This property is available for Popup Pages only.*
Reset View On Show	 This property determines wether to reset the positioning of the Sub-Pages displayed within a Scrolling Region the next time the Scrolling Region is displayed (Yes/No, default = No). ***Note**: This property applies only to Sub-Page View buttons.* For example, imagine a set of 10 Sub-Pages within a Scrolling Region that is large enough to display 5 Sub-Pages simultaneously. By design, Sub-Pages 1-5 will appear on-screen:  When a user scrolls the Sub-Pages to access Sub-Pages 9 and 10, the overall view within the Scrolling Region will have changed:  With *Reset View On Show* enabled (the default setting), the Sub-Pages in the Scrolling Region will be displayed in their last positions the next time the Scrolling Region is displayed. With *Reset View On Show* disabled, the Sub-Pages in the Scrolling Region will be displayed in their default positions the next time the Scrolling Region is displayed. In other words, the Sub-Pages will always appear in the position established during design each time it is displayed. This might be desirable if the popup page contains a button which provides the end user with the ability to move the popup page at will. See the *Scrolling Regions* section on page 173 for details.
Scale To Fit	 Select wether to automatically scale the image to fit the button (*Yes/No*, default = *No*). ***Note**: This button property is available for Computer Control buttons only.* By default, scaling is disabled.

General Properties (Cont.)	
Show Effect	 This property allows you to apply a transition effect to the popup page, to be invoked when the popup is opened (shown). ***Note**: This property is available for Popup Pages only.*
Show Effect Time	 This property allows you to specify the total amount of time it will take to execute the *Fade* Hide effect, measured in 1/10th-second increments. Use this option to synchronize your popup page transition effects. ***Note**: This property is available for Popup Pages only.*
Show Effect X/Y Pos	 Measured in pixels, the Show Effect X/Y Pos (position) fields allow you to specify the starting point on the page for the selected *Slide* Show Effect. Depending on the *Slide* Show Effect selected, either the **Show Effect X Pos.** or **Show Effect Y Pos**. option may become available: ***Note**: This property is available for Popup Pages only.* • If you have selected a left or right slide effect, you can set the X position for the start of the slide transition effect (range = 0 - 9999). The default is 0 (the left edge of the page). In some cases, depending on the page design and graphics, you may decide to start the slide at some other point than the absolute left edge of the page. • If you have selected a top or bottom slide effect, you can set the Y position for the start of the slide transition effect (range = 0 - 9999). The default setting is 0 (top edge of the page).
Show Sub-Pages	 Select *Yes* or *No* from the drop-down menu (default = *Yes*). • Yes - Sub-Pages will be initially displayed. • No - The Sub-Page View button will initially be displayed without sub-pages. ***Note**: This property applies only to Sub-Page View buttons.*
Slider Color	 Select a color to apply to the bargraph slider. Click the browse button (**...**) to open the Colors dialog. ***Note**: This property is available for Bargraph buttons only.*
Slider Name	 Select the desired visual style for the bargraph slider from the list of Slider types. ***Note**: This property is available for Bargraph buttons only.*
Spacing (%)	 Enter an Integer (percentage) value to specify the amount of spacing between Sub-Pages when they are displayed within a Sub-Page View button (0-100, default = 0). ***Note**: This property applies only to Sub-Page View buttons.* This value represents the percentage of the Sub-Page Popup's width (for Horizontal Sub-Page View buttons) or height (for Vertical Sub-Page View buttons) defined by the first Sub-Page in the Sub-Page Set associated with this Sub-Page View button. For example, 0 (the default setting) will result in no spacing between the Sub-Pages displayed within a Scrolling Region. A value of 100 will insert a space that is equal to either the horizontal or vertical dimension (depending on wether the Scrolling Region is set to Horizontal or Vertical orientation) of the first Sub-Page in the Sub-Page Set. See the *Scrolling Regions* section on page 173 for details.

General Properties (Cont.)	
State Count	 This field indicates the number of states currently associated with the selected button. ***Note**: This property is available for Multi-State (General and Bargraph) buttons only.* To change the state count for the selected button, click inside the text field and enter the desired number. • If the state count is increased, new states are added to the end of the set as a duplicate of the last existing state. If the count is decreased, states are removed from the end of the set. • This feature allows the state count to be changed via **Edit > Find & Replace** and with the Paint Properties tool.
Sub-Page Set	 Click the down arrow to select from a listing of all Sub-Page Sets that have been defined via the *Edit Sub-Page Sets* dialog (default = *None*). ***Note**: This property applies only to Sub-Page View buttons. Sub-Page View Buttons, Sub-Pages and Scrolling Regions are supported only by the MX-Series panels.*
TakeNote Enabled	 Select wether to enable TakeNote functionality on the selected Computer Control button (*Yes/No*, default = *No*). ***Note**: This button property is available for Computer Control buttons only.*
TakeNote Host	Enter the IP or DNS resolvable address of the PC whose desktop is to be displayed on this TakeNote button. ***Note**: This button property is available for TakeNote buttons only.*
TakeNote Port	 Enter the port to be used on the PC whose desktop is to be displayed on this TakeNote button (default = **1541)**. ***Note**: This button property is available for TakeNote buttons only.*
Timeout	 This property allows you to specify the Popup Page Timeout, in 1/10th second increments. Popup Page Timeout specifies how long a popup page will remain open and active without a button press (default = 0). ***Note**: This property is available for Popup Pages only.*
Top	 Position values. The **Left** and **Top** rows indicate the position of the selected button, in pixels, relative to the upper-left corner of the Design View window. • You can edit these fields to apply specific positioning info for the button. • Note that if you select the button and manually move it around on the page, these values constantly update to indicate the button's current position.
Touch Map	 Click the browse button (**...**) to select an image to use as the Touch Map image, via the *Select Resource* dialog. ***Note**: This button property is available for Multi-State Bargraph buttons only if the Value Direction is set to Touch Map).*

General Properties (Cont.)	
Touch Style	 This selection drop-down allows you to set a "touch style" for the selected button(s). *Touch style* describes the way buttons behave when pressed, in terms of the shape and border style used. For example, by using transparencies you could create a button that appears to be round (although the actual shape of the button is rectangular), in which case you may not the button to respond if the user presses outside of the circular border. See the *Working With Touch Styles and Active Touch* section on page 253 for details.
Type	 The Type (button type) defaults to the button type (see Supported Button Types) that was set when the button was created.
Value Direction	 Click the down arrow to select the orientation of the bargraph: ***Note**: This property is available for Bargraph and Multi-State Bargraph buttons only.* • For non-multi state Bargraph buttons, the options are *Vertical* or *Horizontal*. • For Multi State Bargraph buttons, the options are *Vertical, Horizontal, or Touch Map.*
Width	 Size value. This property indicates the horizontal width in pixels of every button in the column. You can edit this field to apply specific dimension info for the button. Note that if you select the button and manually resize it on the page, these values constantly update to indicate the current dimensions.

General Properties (Cont.)	
Wrap Sub-Pages	 This setting specifies wether or not the Sub-Pages displayed within a Scrolling Region will wrap on a full scroll (Yes/No, default = *No*). ***Note**: This property applies only to Sub-Page View buttons. See the Sub-Page View Buttons* section on page 157 *for details.* For example, with the Wrap Sub-Pages property disabled (the default setting - No), the Sub-Pages will scroll to the limits of the Sub-Page View button and stop:  With the Wrap Sub-Pages property enabled (Yes), the Sub-Pages will scroll to the limits of the Sub-Page View button and wrap around to reappear on the other side:  See the *Scrolling Regions* section on page 173 for details.

Input Mask Characters

The following table lists the available input mask characters, and which characters each input mask allows in any given position (for use with the *Input Mask* (*General*) property for Text Input buttons):

Input Mask Characters	
0	Digit (0 to 9, entry required, plus [+] and minus [–] signs not allowed).
9	Digit or space (entry not required, plus and minus signs not allowed).
#	Digit or space (entry not required; plus and minus signs allowed).
L	Letter (A to Z, entry required).
?	Letter (A to Z, entry optional).
A	Letter or digit (entry required).
a	Letter or digit (entry optional).
&	Any character or a space (entry required).
C	Any character or a space (entry optional).

Input Mask Ranges

Input Mask Ranges allow a user to specify the minimum and maximum numeric values for a given field. Only one range is allowed per field and the use of a range implies numeric entry only.

The following table lists the available input mask ranges, for use with the *Input Mask* (General) property for Text Input buttons:

Input Mask Ranges	
[	Start Range
]	End Range
|	Range Separator

Input Mask Next Field Characters

Input Mask Next Field characters allow the user to specify a list of characters that caused the keyboard to advance the focus to the next field when pressed instead of inserting the test into the text input area.

The following table lists the available Input Mask Next Field characters, for use with the *Input Mask* (General) property for Text Input buttons:

Input Mask Next Field Characters	
{	Start Next Field List
}	End Next Field List

Input Mask Operators

Input Mask Operators change the behavior of the field in various ways.

The following table lists the available Input Mask Operators, for use with the *Input Mask* (General) property for Text Input buttons:

Input Mask Operators	
<	Causes all characters to be converted to lowercase.
>	Causes all characters to be converted to uppercase.
^	Sets the overflow flag for this field.

Working With Touch Styles and Active Touch

TPD4 supports *Active Touch* technology, which allows you to control the way buttons behave when pressed in terms of the shape and border style used. For example, by using transparencies you could create a button that appears to be round (although the actual shape of the button is rectangular), in which case you may not the button to respond if the user presses outside of the circular border.

The use of Active Touch is set via the Touch Style button property (in the General tab of the Properties Control Window). There are three touch styles to choose from:

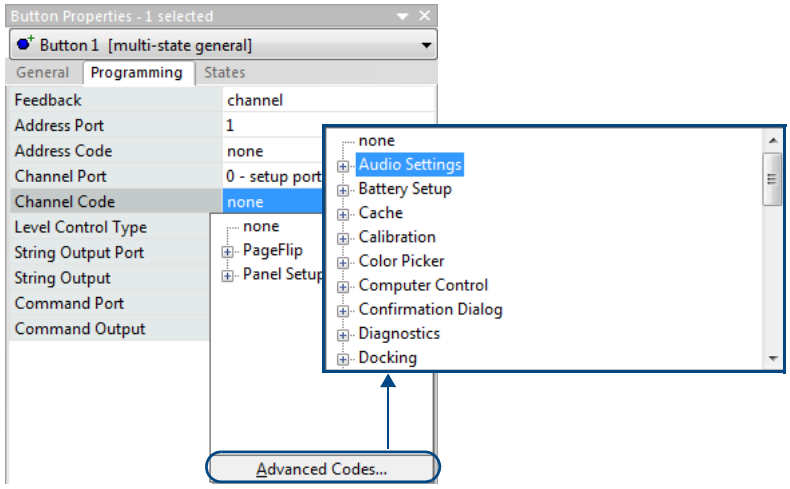
- *Active touch*: This touch style limits the active touch area to the visible area of the button. Areas of the button that are totally transparent will not respond to a press. For example, if you created a totally transparent button with no border and an icon, only the icon would respond to a press. Similarly, if a transparent button has a visible border but no icon, only the border will respond to a press. Touching the transparent areas of the button does not active the button.

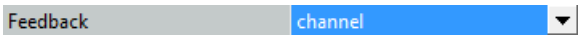
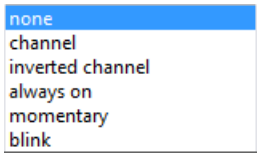
Active Touch requires total transparency on the button in order to work. To make a button totally transparent, set the Overall Opacity (state) setting to 0. If Overall Opacity is set to any other value (for partial transparency), Active Touch will not work.

- *Bounding box*: This touch style forces the panel to respond to a press anywhere within the rectangular boundaries of the button (regardless of transparencies or border styles).
- *Pass through*: This style allows the user to press "through" one button to press another button underneath. If there is no other button underneath the pass through button, the user simply presses the page (with no resulting action).

Programming Properties

The following table describes all Programming Properties, accessible in the Programming tab of the Properties window:

Programming Properties	
Address Code	 Select or enter the address code sent to the master on the selected port. ***Note**: The combination of Address Port and Address Code must be unique.* • The Address Port and Code assignments for *Sub-Pages* are provided only for use in SEND-COMMANDS (not to trigger actions). • Note that (unlike Standard Popup Pages) *Sub-Pages* do not utilize Channel Port/ Code addresses. See the *Sub-Pages* section on page 119 for details.
Address Port	 Select or enter the port to which the selected button's address code will be associated. ***Note**: The combination of Address Port and Address Code must be unique.* • The Address Port and Code assignments for *Sub-Pages* are provided only for use in SEND-COMMANDS (not to trigger actions). • Note that (unlike Standard Popup Pages) *Sub-Pages* do not utilize Channel Port/ Code addresses. See the *Sub-Pages* section on page 119 for details.
Channel Code	 Select or enter the channel code sent to the master on the selected port. If the *Channel Port* is set to 0 = Setup Port, you can click on *Channel Code* to open the *Basic Codes* options, then click on **Advanced Codes** to access the advanced codes menu:  Click the '+' sign beside **Computer Control**, to expand the Advanced Codes menu to show the available functions. ***Note**: The **NXP-PLV** (PosiTrack Video Touch Panel) uses a set of reserved channel and level codes that are reserved for hardware functionality. These codes cannot be re-assigned to other pages or buttons in the panel project.*
Channel Port	 Select or enter the port to which the selected button's channel code will be applied. ***Note**: The combination of Channel Port and Channel Code must be unique.*

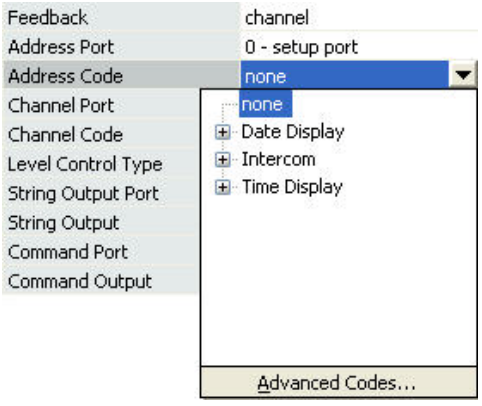
Programming Properties (Cont.)	
Command Output	 Specify the command string sent to the master on button push. • Click the browse button (**...**) to open the Enter Text dialog. • Enter the command output and click • **OK** (or *Cancel* to exit without saving).
Command Port	 Select or enter the port to which the command string output will be applied.
Feedback	 Select the type of feedback to associate with this button (*channel*, *inverted channel*, *always on*, *momentary*, *blink*, or *none*).  • **none** - the button will always display the Off state (and will not indicate a Push/Release) • **channel** - the button will change states (Off to On) on a Push/Release to indicate a channel event • **inverted channel** - the button will change states (On to Off) on a Push/Release to indicate a channel event • **always on** - the button will always display the On state (and will not indicate a Push/Release) • **momentary** - the button will change states, only while the button is being pressed. • **blink** - the button will "blink" (switch between On and Off states) on a Push/Release
Level Aux	 This (read-only) field indicates the auxiliary level sent to the Master on the selected port. ***Note**: This button property is available for Joystick buttons only, and only if a Level Code has been assigned.*
Level Code	 Select or enter the level code sent to the Master on the selected port (*none*, *1*, *2* or *auto-assign*). Select *Auto-Assign* to automatically assign a level code to this button. ***Note**: The **NXP-PLV** (PosiTrack Video Touch Panel) uses a set of reserved channel and level codes that are reserved for hardware functionality. These codes cannot be re-assigned to other pages or buttons in the panel project.*
Level Control Repeat Time	 This value determines the repeat time (in 1/10th-second increments) for relative level control. ***Note**: This option is only available if the Level Control Type is set to **Relative**.* For example, if this value is set to 10, the user can hold the button down for one second to cause the level to raise or lower repeatedly (according to the specified Level Control Value) without having to press the button each time.

Programming Properties (Cont.)	
Level Control Type	Level Control Type: none These options allow General buttons to directly control a level without the need for NetLinx code. Select a level control type for the selected button (*Absolute*, *Relative* or *None*). These options require additional Level Control parameters to be defined. • **Absolute**: The button acts like a preset and sets the level to the desired value. • **Relative**: The button increments or decrements the current level value by a fixed amount.
Level Control Value	Level Control Value: 0 • For *Absolute* level control, this value determines the level value that will be recalled by this button. • For *Relative* level control, this value determines the amount of adjustment relative to the current level resulting from this button. For relative level control, this value can be entered as a positive integer (to raise the relative level setting) or a negative integer (to lower the relative level setting).
Level Function	Level Function: display only Select the desired level function: • *Display Only:* This option creates a bargraph or joystick button that only displays level information (but cannot be used to control levels). • *Active:* This option creates a bargraph or joystick button for controlling levels according the other button parameters set here. • *Active Centering:* This option creates an active bargraph or joystick button that returns to it's center position when released. • Drag: This option creates an active bargraph or joystick button that responds to a relative touch distance on the button after the initial touch, to allow for glide-point style controls. When set to Drag, the user can touch anywhere inside the joystick button and move the level (according to the Range Drag Increment setting). • Drag Centering: This option creates an active drag bargraph or joystick button that returns to it's center position when released. ***Note**: This option is only available for Bargraph, Multi-State Bargraph and Joystick buttons.*
Level Port	Level Port: 1 Select or enter the port to which the Level Code will be applied. Select *0 (Setup port)* or *1* as the level port for this button.
Range Aux Inverted	Range Aux Inverted: yes If set to *Yes*, only the Level Aux range is inverted (default = *No*). ***Note**: This button property is available for Joystick buttons only.*
Range Drag Increment	Range Drag Increment: 256 This field allows you to specify the amount of change that will be registered by one full drag across the control, to allow for fine/coarse adjustments. ***Note**: This property is available for Bargraph, Multi-State Bargraph and Joystick buttons only, and only if **Drag** is selected as the Level Function.*
Range Low	Range Low: 0 Set the bottom of the level range (0-255).
Range High	Range High: 255 Set the top of the level range (0-255).
Range Inverted	Range Inverted: no If set to *Yes*, the range is inverted, so that the top of the level range is 0 and the bottom of the range is 255 on both the X and Y axis (default = *No*). ***Note**: This button property is available for Bargraph, Multi-State Bargraph and Joystick buttons only.*

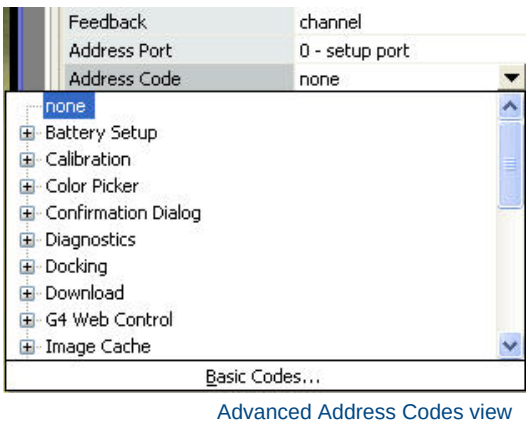
Programming Properties (Cont.)	
Range Time Up	 Specify the amount of time (in 1/10th seconds) it will take for the bargraph to go from the bottom to the top of the specified range (default = 2). This button property is available for General buttons, if a Level Control Type (other than "none") has been selected. This button property is available for Bargraph and Multi-State Bargraph buttons, and only if one of a specific set of Level Functions was selected. These are: • Active • Active Centering • Drag • Drag Centering ***Note**: It is not applicable if the Level Function property is set to "display only".*
Range Time Down	 Specify the amount of time (in 1/10th seconds) it will take for the bargraph to go from the top to the bottom of the specified range (default = 2). This button property is available for General buttons, if a Level Control Type (other than "none") has been selected. This button property is available for Bargraph and Multi-State Bargraph buttons, and only if one of a specific set of Level Functions was selected. These are: • Active • Active Centering • Drag • Drag Centering ***Note**: It is not applicable if the Level Function property is set to "display only".*
String Output	 Specify the output string sent to the master on button push, on the specified String Output Port. Click the browse button (**...**) to open the Enter Text dialog. Enter the output string and click **OK** (or *Cancel* to exit without saving).
String Output Port	 Select or enter the port to which the String Output will be applied.

Address Codes

When a button, page or popup page's *Address Port* is set to **0 - setup port**, then various address code options are made available. Click the down arrow next to **Address Codes** in the Programming tab of the Properties window to view the address code options (FIG. 325).



Basic Address Codes view



Advanced Address Codes view

FIG. 325 Properties window (Programming tab) - Basic & Advanced Address Codes

These address code options are separated into two main categories: *Basic* and *Advanced*, and the options available depend on what type of element is selected (page, popup page or button). Furthermore, different button types support different address codes. By default, the Address Codes item in the Programming tab displays the *Basic Address Codes*.

To switch the view to *Advanced Address Codes*, click on **Advanced Codes** at the bottom of the code list window.

Basic Address Codes

With the Address Port property set to **0 - setup port** (in the Programming tab of the Properties window), several Basic Address Codes options are available (click the + sign to expand each category):

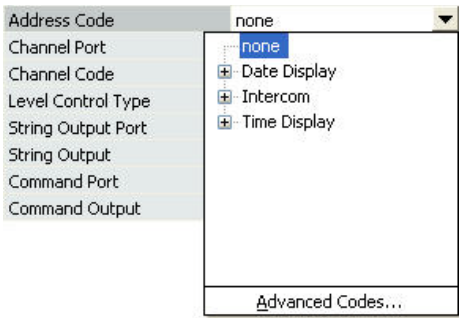
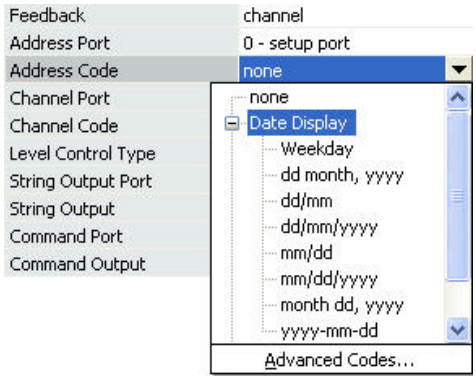
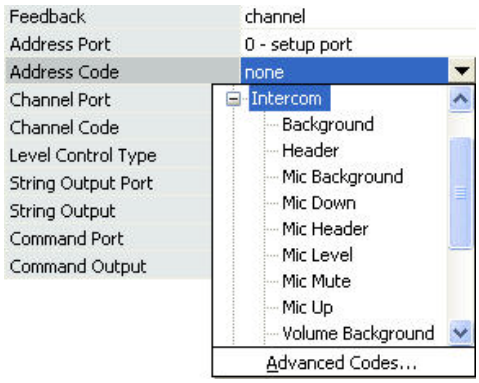
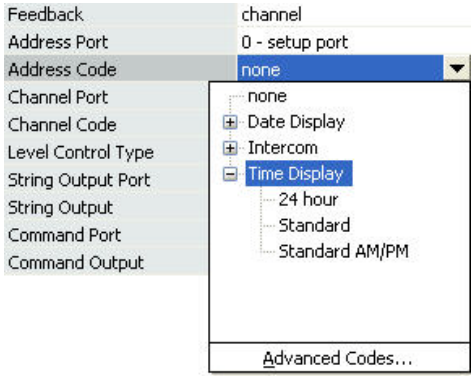


FIG. 326 Properties window (Programming tab) - Advanced Address Codes

Basic Address Codes	
Date Display	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Date Display** options are available (as *Basic* address codes):  • **Weekday**: Displays the current date. Example: “Monday”. • **dd month, yyyy**: Displays the current date. Example: “29 March, 2005” • **dd/mm:** Displays the current date. Example: “29/04” • **dd/mm/yyyy:** Displays the current date. Example: “29/05/2005” • **mm/dd:** Displays the current date. Example: “05/29” • **mm/dd/yyyy:** Displays the current date. Example: “05/29/2005” • **month dd, yyyy:** Displays the current date. Example: “March 29, 2005” • **yyyy-mm-dd:** Displays the current date. Example: “2005-05-29”

Basic Address Codes (Cont.)	
Intercom	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Intercom** options are available (as *Basic* address codes):  Use these options to create buttons that display various intercom-related settings: • Background • Header • Mic Background • Mic Header • Mic Level • Mic Mute • Mic Up / Down • Volume Background • Volume Up / Down • Volume Header • Volume Level • Volume Mute
Time Display	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Time Display** options are available (as *Basic* address codes):  Use these options to create buttons that display the current time. Select a format to use for the time display: • **24-hour:** Displays the current time. Example: “13:30” • **Standard**: Displays the current time. Example: “1:30” • **Standard AM/PM**: Displays the current time. Example: “1:30 PM”

Creating a Date Button

A *Date Button* is a button that displays the current date on the panel. It is a read-only (non-interactive) button.

To create a date button:

1. Create a new button. The button can be of any type, but normally you would use the General button type.
2. In the *Programming* tab of the Properties window, click the *Address Port* field to enable the drop-down menu.
3. Select **0-setup port** from the drop-down menu (FIG. 327).

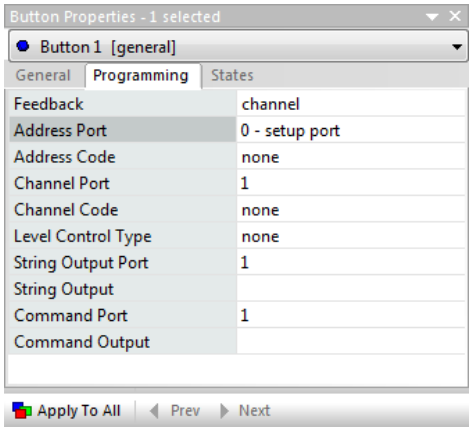


FIG. 327 Programming tab - Address Port = "0 - Setup Port"

4. Click the *Address Code* field to enable the drop-down menu (*none*, *Date Display*, *Intercom*, *Time Display*):

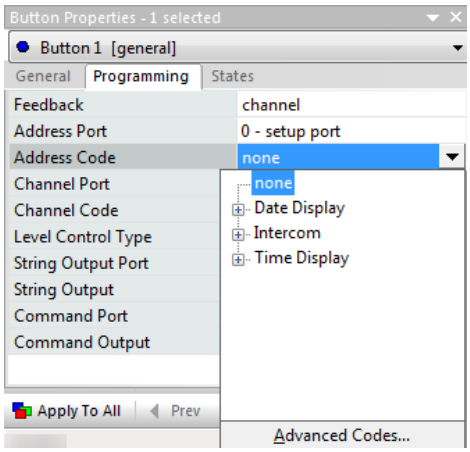


FIG. 328 Programming tab - Address Code drop-down menu

5. Click the plus (+) symbol next to **Date Display** to expose a drop-down menu of time display formats to choose from (FIG. 329).

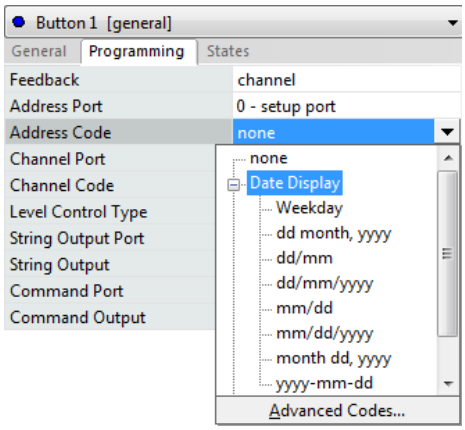


FIG. 329 Address Code = Date Display drop-down menu

6. Select the desired display format (*Weekday, dd/mm/ yyyy, yyyy-mm-dd, etc).*

NOTE

Time and Date buttons do not display any text when viewed in TPD4. The time or date is only visible once the project is loaded on a touch panel.

Creating an Intercom Button

An *Intercom Button* is a button that displays intercom functionality on the panel. It is a read-only (non-interactive) button.

To create an intercom button:

1. Create a new button. The button can be of any type, but normally you would use the General button type.
2. In the *Programming* tab of the Properties window, click the *Address Port* field to enable the drop-down menu.
3. Select **0-setup port** from the drop-down menu (FIG. 327).

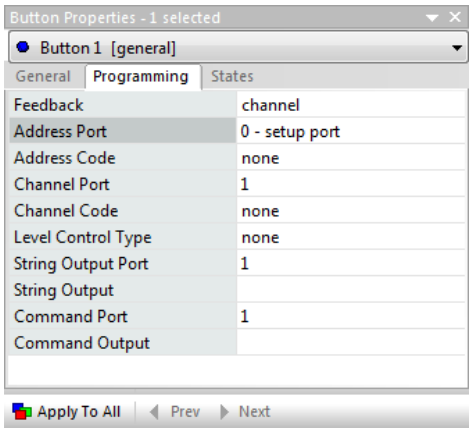


FIG. 330 Programming tab - Address Port = "0 - Setup Port"

4. Click the *Address Code* field to enable the drop-down menu (*none*, *Date Display*, *Intercom*, *Time Display*):

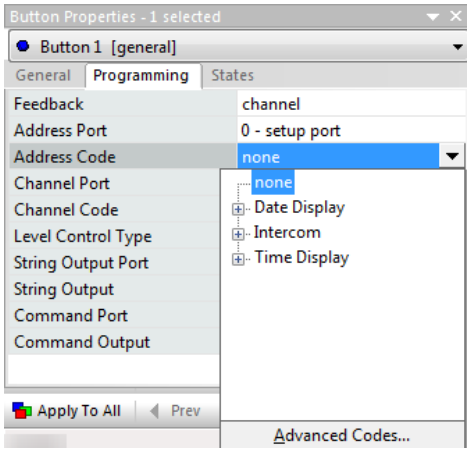


FIG. 331 Programming tab - Address Code drop-down menu

5. Click the plus (+) symbol next to **Intercom** to expose a drop-down menu of intercom functions to choose from (FIG. 332).

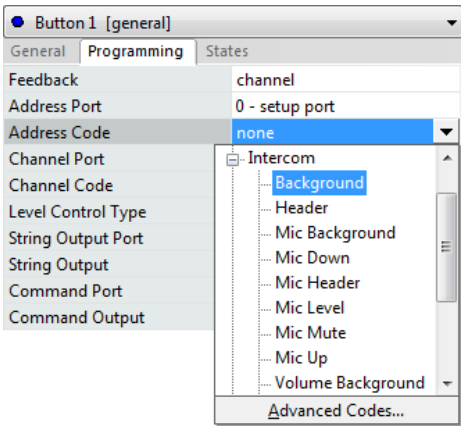


FIG. 332 Address Code = Intercom drop-down menu

6. Select the desired function (*Background, Header, Mic Background, etc).*

Creating a Time Button

A *Time Button* is a button that displays the current time on the panel. It is a read-only (non-interactive) button.

To create a time button:

1. Create a new button. The button can be of any type, but normally you would use the General button type.
2. In the *Programming* tab of the Properties window, click the *Address Port* field to enable the drop-down menu.
3. Select **0-setup port** from the drop-down menu (FIG. 327).

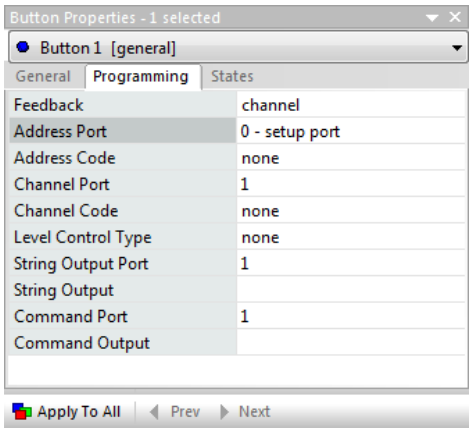


FIG. 333 Programming tab - Address Port = "0 - Setup Port"

4. Click the *Address Code* field to enable the drop-down menu (*none*, *Date Display*, *Intercom*, *Time Display*):

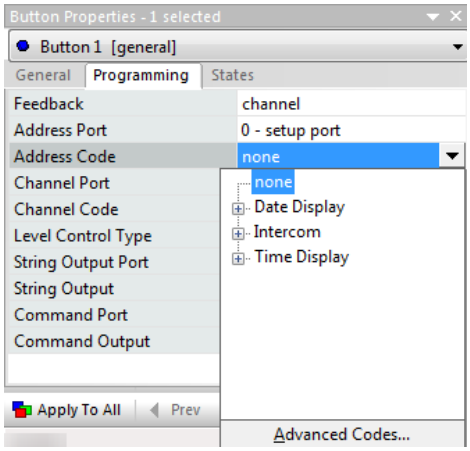


FIG. 334 Programming tab - Address Code drop-down menu

5. Click the plus (+) symbol next to **Time Display** to expose a drop-down menu of time display formats to choose from (FIG. 335).

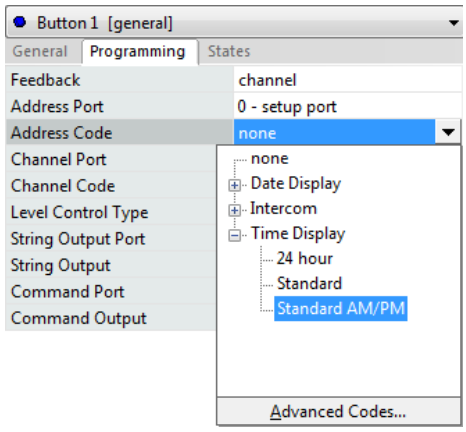


FIG. 335 Address Code = Date Display drop-down menu

6. Select the desired display format (*24-hour*, *Standard* or *Standard AM/PM*).

NOTE

Time and Date buttons do not display any text when viewed in TPD4. The time or date is only visible once the project is loaded on a touch panel.

Advanced Address Codes

With the Address Port property set to **0 - setup port** (in the Programming tab of the Properties window), several Advanced Address Codes options are available via the *Advanced Codes* option (click the + sign to expand each category):

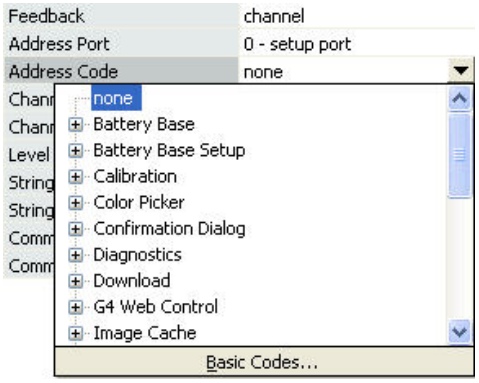


FIG. 336 Properties window (Programming tab) - Advanced Address Codes

Advanced Address Codes	
Battery Base	*These functions are intended for internal use only, no custom settings are required.*
Battery Base Setup	
Battery Setup	
Calibration	
Color Picker	
Confirmation Dialog	
Diagnostics	
Docking	
Download	

Advanced Address Codes (Cont.)	
G4 WebControl	With Address Port set to **0 - setup port** (Programming tab of the Properties window), the following **G4** WebControl options are available (under Advanced address codes). Use these options to create buttons that allow you to view/edit the following G4 Web-Control configuration settings, directly from the panel: • **Display Number Current Connections**: Displays the current number of users connected to the target panel via the web. • **Enable/Disable:** Toggles G4 WebControl functionality on the target touch panel: *Enable*- activates the G4 Web Control feature on the panel and allows an external PC running a VNC client to access the panel (after the remaining fields are configured). *Disable*- deactivates the G4 Web Control feature on the panel. • **Inactivity Timeout**: Displays the current inactivity timeout setting for the panel. Inactivity Timeout represents the length of time (in minutes) that the panel can remain idle (no cursor movements) before the WebControl session is closed and the user is disconnected. • **Network Interface Select:** Displays the method of communication to the web specified for the panel (Wired or Wireless): *Wired* – a direct Ethernet connection is being used for communication to the web. This is a default setting if no wireless interface card is detected by the panel. *Wireless* – a wireless card is detected in the rear PCMCIA slot. This method provides an indirect communication to the web via a pre-configured Wireless Access Point. • **Password**: Allows you to enter the G4 Authentication session password associated for VNC web access for the target panel. • **Server Name:** Displays the name of the panel as specified for WebControl. • **Server Port**: Displays the port on the NetLinx Master currently assigned to the VNC Web Server (default = 5900). • **Set Maximum Number of Connections**: Displays the maximum number of users that can be connected to the target panel via the web (default = 1).
Image Cache	*These functions are intended for internal use only, no custom settings are required.*
Image NV Cache	*These functions are intended for internal use only, no custom settings are required.*
Image RAM Cache	*These functions are intended for internal use only, no custom settings are required.*
Keyboard	*These functions are intended for internal use only, no custom settings are required.*
Master	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Master** options are available (under *Advanced* address codes). Use these options to create buttons that display certain communication settings for the NetLinx Master that the panel is connected to: • **IP Address**: Displays the IP Address for the NetLinx Master that the panel is connected to. • **Mode**: Displays the connection modes currently set for the NetLinx Master (*URL*, *Listen*, or *Auto*). These options only apply to ETHERNET connections. • **Port Number**: Displays the port on the NetLinx Master assigned to the panel. • **System ID**: Displays the System ID for the NetLinx Master that the panel is connected to.

Advanced Address Codes (Cont.)	
Panel ID	With Address Port set to **0 - setup port** (Programming tab of the Properties window), several **Panel ID** options are available (under *Advanced* address codes). Use these options to create buttons that allow you to view/edit the following identification criteria for the panel, directly from the panel: • **DHCP / Static**: Displays the mode of addressing used by this panel (*DHCP* or *Static*). • **Device Domain**: Displays the Device Domain the panel is assigned to. • **Device Number**: Displays the Device number assigned to the panel. • **Gateway Address**: Displays the Gateway Address assigned to the panel. • **Host Name**: Displays the Host Name assigned to the panel. • **ICSNet**: Displays the current communication setting for the NetLinx Master (*ICSNet*, *Ethernet* or *USB*). • **IP Address**: Displays the IP Address assigned to the panel. • **MAC Address**: Displays the MAC Address assigned to the panel. • **Primary DNS Address**: Displays the Primary DNS Address assigned to the panel. • **Secondary DNS Address**: Displays the Secondary DNS Address assigned to the panel. • **Subnet Mask**: Displays the Subnet Mask assigned to the panel.
Panel Info	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several Panel Info options are available (under *Advanced* address codes). Use these options to create buttons that allow you to view the following panel information, directly from the panel itself: • **Blink Rate:** Displays the blink rate for blinking feedback, in .10-second increments (default = 5). This setting can be changed in the **Panel Setup Information** tab of the Project Properties dialog. • **Build Number:** Displays the build number information of the TPD4 software used to create the project file. • **Connection Status:** Displays the panel's current connection status (i.e. "Connected via Ethernet"). • **Creation Date:** Displays the project creation date. • **Dealer ID**: Displays the dealer ID number. • **Designer ID:** Displays the designer information. • **Draw Version:** *TBD* • **File Name**: Displays the name of the TPD4 project file downloaded to the panel. • **File Revision:** Displays the revision number of the file. • **File System:** Displays the amount of Compact Flash memory available on the panel. • **File Version:** *TBD* • **Firmware Version 1**: Displays the G4 firmware version being used by the panel. • **Firmware Version 2:** *TBD* • **Inactivity Page:** Displays the name of the page currently set as the inactivity page. • **Job Comment:** Displays any comments associated to the job. These comments are taken from the TPD4 project file. • **Job Name:** Displays the job name associated with the project. • **Last Save Date:** Displays the last date the project was saved. • **Light Sensor Channel Code**: Displays the channel code number assigned to the panel's light sensor. • **Light Sensor Channel Por**t: Displays the channel port number assigned to the panel's light sensor. • **Light Sensor Level Code**: Displays the channel level code number assigned to the panel's light sensor. • **Light Sensor Level Port**: Displays the level port number assigned to the panel's light sensor. • **Motion Sensor Channel Code**: Displays the channel code number assigned to the panel's motion sensor. • **Motion Sensor Channel Por**t: Displays the channel port number assigned to the panel's motion sensor.

Advanced Address Codes (Cont.)	
Panel Info (Cont.)	• **Panel Type**: Displays the model of the panel being used. • **Purchase Order**: Displays the purchase order information associated with the project. • **RAM:** Displays the available RAM (or Extended Memory module) on the panel. • **Revision Date:** Displays the last revision date for the project. • **Sales Order**: Displays the sales order information associated with the project. • **Serial Number:** Displays the serial number assigned to the panel.
Panel Setup	With Address Port set to **0 - setup port** (Programming tab of the Properties window), several Panel Setup options are available (as *Advanced* address codes). Use these options to create buttons that allow you to view the following panel information, directly from the panel: • **Address Count**: Displays the high address (address count) value for the panel. • **Brightness**: Displays the panels' current brightness setting (1-100). • **Channel Count**: Displays the high channel value (channel count) for the panel. • **Connection Status**: Displays the panel's current connection status (i.e. "Connected via Ethernet"). • **Display Timeout:** Displays the current Display Timeout setting (in minutes). This represents the length of time that the panel can remain idle (no cursor movements) before the panels enters Sleep Mode (the panel LCD is powered-down). • **Internal Volume**: Displays the current volume setting for the panels' internal speaker (range = 0 - 100). • **Level Count:** Displays the high level (level count) value being used by the panel. • **Light Sensor Dim Mode Status:** Displays the current setting of the Modero panel's light sensor for Dim Mode (range = 1-100). This number represents the light level at which the panel switches to DIM mode (for use in a dark room). • **Light Sensor Status**: Displays the current reading of the panel's light sensor. • **Line In Volume**: Displays the current line-in volume level (being received from the NXA-AVB Breakout Box). • **Master Volume**: Displays the current master volume level setting for the panel. • **Mic Output Volume**: Displays the current microphone volume level (being routed through the NXA-AVB A/V Breakout Box). • **Motion Sensor Panel Wake Status**: Displays the current motion sensitivity setting for waking the panel from it's timeout state. • **Password**: Displays the password, in a secured view (showing only asterisks). • **Port Count:** Displays the high port (port count) value for the panel. • **Power Up Page**: Displays the first touch panel page assigned for display after the device is powered-up. • **Screen Height**: Displays the pixel height being used to display the incoming video signal on the panel. • **Screen Refresh**: Displays the video refresh rate applied to the incoming video signal from the panel. • **Screen Rotate**: Displays the degree of rotation applied to the on-screen image. • **Screen Width**: Displays the pixel width being used to display the incoming video signal on the panel. • **Setup Port**: Displays the setup port information/value being used by the panel. • **Sleep String**: Displays the sleep string used during a panel's sleep mode. • **Start Up String**: Displays the start-up string. • **User Name**: Displays the *Username* currently associated with the panel (as specified in the *Security* area of the Master's web interface. • **Wake Up String**: Displays the wake up string used after an activation from a timeout.

Advanced Address Codes (Cont.)	
Primary Network Interface	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Primary Network Interface** options are available (as *Advanced* address codes). Use these options to create buttons that allow you to view the following Primary Network Interface information, directly from the panel: • **DHCP/Static**: Displays the panels' current communication mode (DHCP or Static). • **Domain**: Displays the name of the DNS Domain that the panel belongs to. • **Gateway Address**: Displays the gateway value currently assigned to the panel. • **Host Name:** Displays the host name of the panel. • **IP Address**: Displays the primary IP Address assigned to the panel. • **MAC Address**: Displays the panels' MAC address (factory set by AMX for the built-in Ethernet interface). • **Primary DNS Address**: Displays the address of the primary DNS server being used by the panel for host name lookups. • **Secondary DNS Address:** Displays the address of the secondary DNS server being used by the panel for host name lookups. • **Subnet Mask**: Displays the subnetwork address mask assigned to the panel.
RGB	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several **RGB** options are available (as *Advanced* address codes). Use these options to create buttons that display the following values for the RGB video source: • **Blue Brightness**: Displays the current blue color brightness setting for the incoming RGB video source. • **Blue Contrast**: Displays the current blue color contrast setting for the incoming RGB video source. • **Green Brightness**: Displays the current green color brightness setting for the incoming RGB video source. • **Green Contrast**: Displays the current green color contrast setting for the incoming RGB video source. • **Horizontal Position**: Displays the current horizontal position setting for the incoming RGB video source. • **Horizontal Size**: Displays the current horizontal size setting for the incoming RGB video source. • **Phase**: Displays the current tracking/signal level for the incoming RGB video source. • **Red Brightness**: Displays the current red color brightness setting for the incoming RGB video source. • **Red Contrast**: Displays the current red color contrast setting for the incoming RGB video source. • **Status**: Displays the input signal properties of the selected TP4-RGB card (H-pixel x V-pixel @ Hz). • **Version**: Displays the Firmware version currently being used by the selected TP4-RGB card. • **Vertical Position**: Displays the vertical position level setting for the incoming RGB video source.
SIP	*These functions are intended for internal use only, no custom settings are required.*

Advanced Address Codes (Cont.)	
Secondary Network Interface	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several Secondary Network Interface options are available (as *Advanced* address codes). Use these options to create buttons that display the following wireless connection parameters for the Wireless Interface Card (WIC) used by Modero panels: • **Access Point MAC Address**: Displays the MAC address of the Wireless Access Point (WAP) used with the WIC (this value is factory set by the WAP manufacturer). • **Channel**: Displays the RF channel being used for connection to the WAP. • **Current Key**: Displays the WEP key currently in use. • **DHCP/Static**: Displays the current communication mode (DHCP or Static) of the WIC. • **Domain**: Displays the name of the DNS Domain that the WIC belongs to. • **Encryption**: Displays the current encryption setting (Clear Text, WEP64, or WEP128). • **Gateway Address**: Displays the gateway value currently assigned to the WIC. • **Generate Passphrase**: Pressing the Generate button displays an on-screen keyboard which allows you to enter a passphrase and then automatically generate all four WEP keys which are compatible only among Modero panels. • **Host Name**: Displays the host name of the WIC. • **IP Address**: Displays the primary IP Address assigned to the WIC. • **MAC Address**: Displays the WICs' MAC address (factory set). • **Primary DNS Address**: Displays the address of the primary DNS server being used by the WIC for host name lookups. • **Secondary DNS Address**: Displays the address of the secondary DNS server being used by the WIC for host name lookups. • **Subnet Mask**: Displays the subnetwork address mask assigned to the WIC. • **Wireless Authentication**: Displays the current authentication mode setting (Open System or Shared Key) for the WIC. • **Wireless Default WEP Key**: Displays the WEP key identifier that is currently set as the default WEP key. • **Wireless SSID**: Displays the Service Set Identifier (SSID), used by the panel in order to join the wireless network. The SSID is the unique name used on the WAP and assigned to all panels in a wireless network that are communicating to the same target WAP. • **Wireless WEP Key 1**: Displays the WEP key identifier that currently set as WEP Key 1. • **Wireless WEP Key 2**: Displays the WEP key identifier that currently set as WEP Key 2. • **Wireless WEP Key 3**: Displays the WEP key identifier that currently set as WEP Key 3. • **Wireless WEP Key 4**: Displays the WEP key identifier that currently set as WEP Key 4.
Site Survey	*These functions are intended for internal use only, no custom settings are required.*

Advanced Address Codes (Cont.)	
TakeNote	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several TakeNote options are available (as *Advanced* address codes). Use these options to create buttons that allow you to adjust the following options for TakeNote annotations, directly from the panel. • **Font Size**: Sets the size of the font used by the text tool in TakeNote. • **Overall Opacity**: This slidebar allows a user to change the overall opacity of the TakeNote (annotations) canvas from Less Opaque (less transparent/solid) to More Opaque (More transparent/solid) and several points in between.Opacity only applies to transparent mode, it does not work in the blackboard and whiteboard mode. • **Pen Width**: Sets the width of the lines drawn with the pen tool in TakeNote. • **Shape Side Count**: Sets the number of sides to use to draw shapes in TakeNote. High side counts will result in smoother curves.
Time Set	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several Time Set options are available (as *Advanced* address codes): Use these options to create buttons that allow you to adjust the Master's calendar date and time, directly from the panel: • **Day**: Use the UP/DN buttons to alter the day value. Range = 1 – 31. • **Hour**: Use the UP/DN buttons to alter the hour value. Range = 1 – 24. • **Minute**: Use the UP/DN buttons to alter the minute value. Range = 1 – 60. • **Month**: Use the UP/DN buttons to alter the month value. Range = 1 – 12. • **Second**: Use the UP/DN buttons to alter the second value. Range = 1 – 60. • **Year**: Use the UP/DN buttons to alter the year value. Range = 2000 – 2037.
Warning Message	*These functions are intended for internal use only, no custom settings are required.*
Wireless	*These functions are intended for internal use only, no custom settings are required.*
Video	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Video** options are available (as *Advanced* address codes). Use these options to create buttons that allow you to adjust the following values for the video source, directly from the panel: • **Brightness**: Use the UP/DN buttons to alter the brightness level of the incoming signal. Range = 0 - 255, default = 128. • **Contrast**: Use the UP/DN buttons to alter the contrast level of the incoming signal. Range = 0 - 255, default = 128. • **Hue**: Use the UP/DN buttons to alter the hue level of the incoming signal. Range = 0 - 255, default = 128. • **Input**: Allows you to cycle through a choice of available video inputs (either *Composite* or *S-Video*). Default = Composite. • **Saturation**: Use the UP/DN buttons to alter the color saturation level of the incoming signal. Range = 0 - 255, default = 128. • **Status**: Displays whether or not a video-sync signal is detected. • **Version**: Displays the Firmware version being used by the selected TP4-VID card.
VideoRGB	With Address Port set to **0 - setup port** (in the Programming tab of the Properties window), several VideoRGB options are available (as *Advanced* address codes): Use these options to create buttons that allow you to adjust the following values for the RGB video source, directly from the panel. • **Slot 1**: Selects the TP4 card connected to slot number 1, and displays the corresponding setup page. • **Slot 2**: Selects the TP4 card connected to slot number 2, and displays the corresponding setup page. • **Slot 3**: Selects the TP4 card connected to slot number 3, and displays the corresponding setup page. • **Slot 4**: Selects the TP4 card connected to slot number 4, and displays the corresponding setup page.
Video Streaming	*These functions are intended for internal use only, no custom settings are required.*

Channel Codes

When a button, page or popup page's *Channel Port* is set to **0 - setup port**, then various channel code options are made available.

Click the down arrow next to **Channel Codes** in the Programming tab of the Properties window to view the channel code options (FIG. 337).

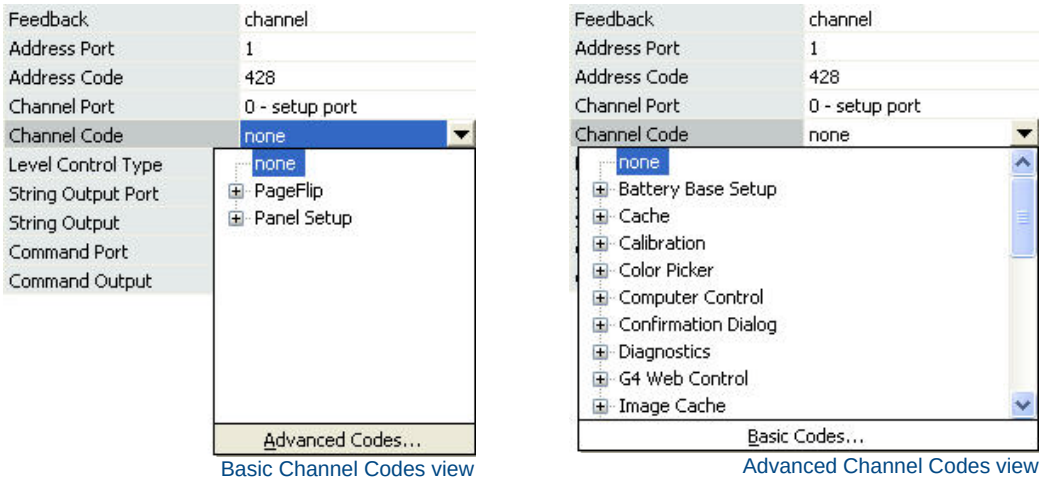


FIG. 337 Properties window (Programming tab) - Basic & Advanced Channel Codes

These channel code options are separated into two main categories: *Basic* and *Advanced*, and the options available depend on what type of element is selected (page, popup page or button). Furthermore, different button types support different channel codes. By default, the Channel Codes item in the Programming tab displays the Basic Channel Codes.

To switch the view to Advanced Channel Codes, click on **Advanced Codes** at the bottom of the code list window.

Navigation Buttons - Channel Code values

Channel Code values that can be applied to Navigation buttons (via the Channel Code Programming property) include:

- **none** - no navigation command will be associated with this button.
- **Up** - Move up one entry
- **Down** - Move down one entry
- **Page Up** - Move up one page
- **Page Down** - Move down one page
- **Home** - Move to Top of page
- **End** - Move to bottom of page
- **Sort Column (1-20)** - Enter the number of the column to use for alpha-numeric sorting (1-20).

The *Sort Column* entries contain the column titles (up to 20 columns, supplied by the List Data Table). Once applied to a Navigation Button, the button will sort the list box based on this column selection.

It is up to you to make sure a column exists in the table when defining a "*Sort Column #*".

TPD4 displays these list values regardless of the panel type. However, TPD4 will save the "List" or "Selection" version of "Up, Down,..." automatically, based on whether the PPF says the panel type supports "Selection" (i.e. a panel without a touch overlay, such as the MAX AVP).

NXP-PLV Reserved Channel Codes (1-7)

The NXP-PLV will define a set of Channel codes (1-7) and Level codes (1-11) on Port 1 that are reserved for hardware functionality.

These codes are considered reserved for the device and cannot be re-assigned to other pages or buttons in the panel project.

The following table lists the reserved **Channel** Codes for the NXP-PLV:

NXP-PLV Reserved Channel Codes (1-7)		
Port	Code	Description
1	1	1 Joystick - East Quadrant
1	2	2 Joystick - West Quadrant
1	3	3 Joystick - North Quadrant
1	4	4 Joystick - South Quadrant
1	5	5 Joystick - Twisted Clockwise
1	6	6 Joystick - Twisted Counter-Clockwise
1	7	7 Joystick - External Footswitch Port

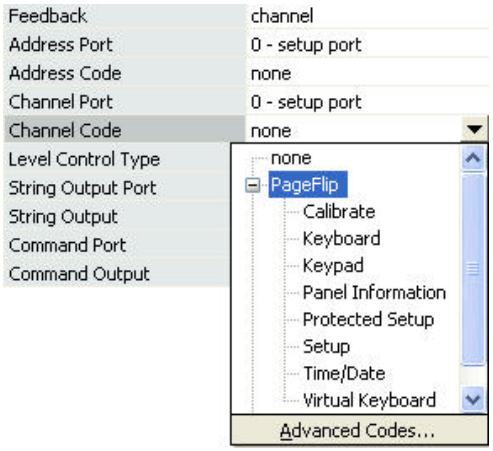
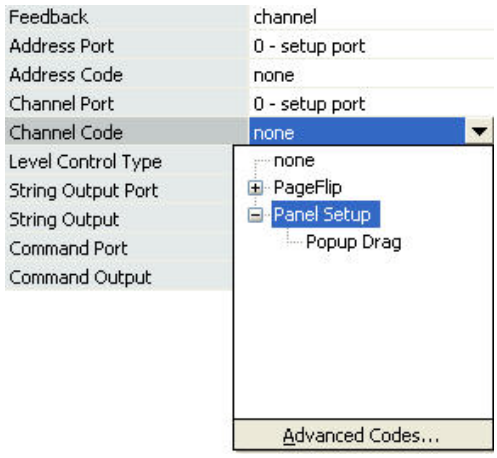
MIO R-4 Channel Codes

The following Channel Codes are specific to the MIO R-4 Teletext remotes (Standard or with Transports):

Teletext Channel Codes			
Button	Channel	Button	Channel
PLAY	1	CH+	22
STOP	2	CH-	23
PAUSE	3	VOL +	24
FFW	4	VOL -	25
REW	5	MUTE	26
S.FFD	6	INPUT	29
S.REV	7	MENU	31
REC	8		32
Power Symbol	9		33
0	10		34
1	11		35
2	12	SELECT	36
3	13	EXIT	37
4	14	GUIDE	38
5	15	INFO	39
6	16	LAST	none
7	17	A (Macro 1)	250
8	18	B (Macro 2)	251
9	19	C (Macro 3)	252
ENTER	21		

Basic Channel Codes

With the Channel Port property set to **0 - setup port** (in the Programming tab of the Properties window), several Basic Channel Codes options are available (click the + sign to expand each category):

Basic Channel Codes	
Page Flip	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **Page Flip** options are available (as *Basic* channel codes):  • **Calibrate**: Creates a page flip to the Calibration page. • **Keyboard**: Invokes the on-screen keyboard. • **Keypad**: Invokes the on-screen numeric keypad. • **Protected Setup**: Creates a page flip to the Protected Setup page. • **Setup**: Creates a page flip to the Setup page. • **Time/Date**: Creates a page flip to the Time and Date Setup page. • **Virtual Keyboard**: Invokes the on-screen virtual keyboard.
Panel Setup	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **Page Flip** options are available (as *Basic* channel codes):  • Popup Drag

Advanced Channel Codes

With the Channel Port property set to **0 - setup port** (in the Programming tab of the Properties window), several Advanced Channel Codes options are available via the *Advanced Codes* option (click the + sign to expand each category):

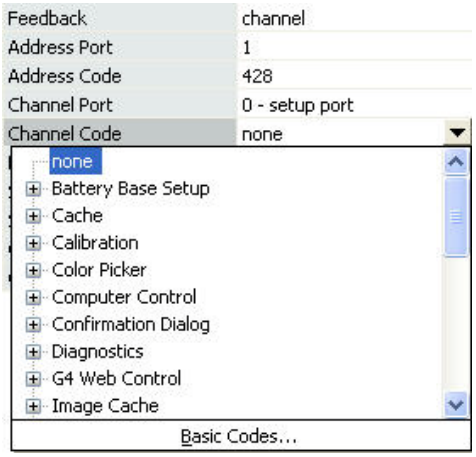


FIG. 338 Properties window (Programming tab) - Advanced Channel Codes

Advanced Channel Codes	
Battery Base Setup	*These functions are intended for internal use only, no custom settings are required.*
Cache	*These functions are intended for internal use only, no custom settings are required.*
Calibration	*These functions are intended for internal use only, no custom settings are required.*
Color Picker	*These functions are intended for internal use only, no custom settings are required.*
Computer Control	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **Computer Control** options are available (as *Advanced* channel codes): • **Center Mouse Button:** Sets mouse mode to center mouse button such that any subsequent touches are translated to center mouse clicks. Clears any previously set mouse mode. • **Host Entry**: Brings up keyboard for entry of the target PC's hostname or IP address. • **Jump To BottomLeft Corner**: Sends the mouse cursor to the bottom-left corner of the screen when pressed. • **Jump To BottomRight Corner**: Sends the mouse cursor to the bottom-right corner of the screen when pressed. • **Jump To TopLeft Corner**: Sends the mouse cursor to the top-left corner of the screen when pressed. • **Jump To TopRight Corner**: Sends the mouse cursor to the top-right corner of the screen when pressed. • **Left Mouse Button:** Sets mouse mode to left mouse button such that any subsequent touches are translated to left mouse clicks. Clears any previously set mouse mode. • **Logoff**: Logs-On the computer control connection. • **Logon**: Logs-Off the computer control connection. • **Mouse Double Click**: Emulates a double-click on the mouse (right-button) when pressed. • **Mouse Move Only**: Sets mouse mode to move only such that any subsequent touches and movements are translated to mouse movements only (not clicks). Clears any previously set mouse mode.

Advanced Channel Codes (Cont.)	
Computer Control (Cont.)	• **Password Entry**: Brings up keyboard for entry of the target PC's Computer Control password. • **Port Entry**: Brings up keyboard for entry of the target PC's Computer Control port (typically 5900). • **Right Mouse Button**: Sets mouse mode to right mouse button such that any subsequent touches are translated to right mouse clicks. Clears any previously set mouse mode. • **Scroll Down**: Scrolls the Computer Control view down. • **Scroll Left**: Scrolls the Computer Control view left. • **Scroll Right**: Scrolls the Computer Control view right. • **Scroll Up**: Scrolls the Computer Control view up.
Confirmation Dialog	*These functions are intended for internal use only, no custom settings are required.*
Diagnostics	*These functions are intended for internal use only, no custom settings are required.*
G4 Web Control	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **G4 Web Control** options are available (as *Advanced* channel codes): • **Display Number Current Connections:** *TBD* • **Enable/Disable**: Creates a button that allows you toggle G4 Web Control on/off (On = *enabled*, Off = *disabled*). • **Inactivity Timeout Down:** *TBD* • Inactivity Timeout Up: • *TBD* • **Network Interface Select:** *TBD* • **Password**: *TBD* • **Server Name**: *TBD* • **Server Port**: *TBD*
Image Cache	*These functions are intended for internal use only, no custom settings are required.*
Image NV Cache	*These functions are intended for internal use only, no custom settings are required.*
Keyboard	*These functions are intended for internal use only, no custom settings are required.*
Master	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following Master options are available (as *Advanced* channel codes): Use these options to create buttons that display certain communication settings for the NetLinx Master that the panel is connected to: • **IP Address**: Displays the IP Address for the NetLinx Master that the panel is connected to. • **Mode**: Displays the connection modes currently set for the NetLinx Master (*URL*, *Listen*, or *Auto*). These options only apply to ETHERNET connections. • **Port Number**: Displays the port on the NetLinx Master assigned to the panel. • **System ID**: Displays the System ID for the NetLinx Master that the panel is connected to.

Advanced Channel Codes (Cont.)	
Panel ID	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Panel ID** options are available (as *Advanced* channel codes). Use these options to create buttons that allow you to view/edit the following identification criteria for the panel, directly from the panel: • **DHCP / Static**: Displays the mode of addressing used by this panel (*DHCP* or *Static*). • **Device Domain**: Displays the Device Domain the panel is assigned to. • **Device Number**: Displays the Device number assigned to the panel. • **Gateway Address**: Displays the Gateway Address assigned to the panel. • **Host Name**: Displays the Host Name assigned to the panel. • **ICSNet**: Displays the current communication setting for the NetLinx Master (*ICSNet*, *Ethernet* or *USB*). • **IP Address**: Displays the IP Address assigned to the panel. • **MAC Address**: Displays the MAC Address assigned to the panel. • **Primary DNS Address**: Displays the Primary DNS Address assigned to the panel. • **Secondary DNS Address**: Displays the Secondary DNS Address assigned to the panel. • **Subnet Mask**: Displays the Subnet Mask assigned to the panel.
Panel Setup	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Panel Setup** options are available (as *Advanced* channel codes): Use these options to create buttons that allow you to view the following panel information, directly from the panel: • **Baud Rate Down**: Adjusts the current baud rate setting down. • **Baud Rate Up**: Adjusts the current baud rate setting up • **Button Hit**: *TBD* • **Button Miss**: *TBD* • **Connection Status**: Displays the panel's current connection status (i.e. "Connected via Ethernet"). • **Display Timeout Down**: Adjusts the current Display Timeout setting down (in one-minute increments). • **Display Timeout Up**: Adjusts the current Display Timeout setting up (in one-minute increments). • **Function Show**: *TBD* • **Inactivity Page Time Down**: Adjusts the amount of time allowed before the panel flips to the Inactivity Page down (in one-minute increments). • **Inactivity Page Time Up**: Adjusts the amount of time allowed before the panel flips to the Inactivity Page up (in one-minute increments). • **Page Tracking:** *TBD* • **Password:** TBD • **Password 1 Set**: *TBD* • **Password 2 Set**: *TBD* • **Password 3 Set:** *TBD* • **Password 4 Set**: *TBD* • **Password 5 Set:** *TBD* • **Reboot:** Reboots the panel. • **Resolution Select:** *TBD* • **Telnet**: *TBD* • **Touch Select**: *TBD* • **Update Local Info**: *TBD* • **Username**: Displays the *Username* currently associated with the panel (as specified in the *Security* area of the Master's web interface). • **Volume Down:** Adjusts the panel's master volume level down. • **Volume Mute**: Mutes the panel's master volume. • **Volume Up:** Adjusts the panel's master volume level up.

Advanced Channel Codes (Cont.)	
Primary Network Interface	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Primary Network Interface** options are available (as *Advanced channel* codes). Use these options to create buttons that allow you to view the following Primary Network Interface information, directly from the panel: • **DHCP/Static**: Displays the panels' current communication mode (*DHCP* or *Static*). • **Domain**: Displays the name of the DNS Domain that the panel belongs to. • **Ethernet Mode**: *TBD* • **Gateway Address**: Displays the gateway value currently assigned to the panel. • **Host Name:** Displays the host name of the panel. • **IP Address**: Displays the primary IP Address assigned to the panel. • **Primary DNS Address**: Displays the address of the primary DNS server being used by the panel for host name lookups. • **Secondary DNS Address:** Displays the address of the secondary DNS server being used by the panel for host name lookups. • **Setup Primary Network Interface**: *TBD* • **Subnet Mask**: Displays the subnetwork address mask assigned to the panel.
RGB	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), several **RGB** options are available (as *Advanced* channel codes). Use these options to create buttons that allow you to adjust the following values for the RGB video source directly from the panel: • **All Brightness Dn**: Adjusts all RGB brightness levels down. • **All Brightness Up:** Adjusts all RGB brightness levels up. • **All Contrast Dn**: Adjusts all RGB contrast levels down. • **All Contrast Up**: Adjusts all RGB contrast levels up. • **Blue Brightness Dn**: Adjusts the Blue brightness level down. • **Blue Brightness Up:** Adjusts the Blue brightness level up. • **Blue Contrast Dn:** Adjusts the Blue contrast level down. • **Blue Contrast Up**: Adjusts the Blue contrast level up. • **Default**: Resets all RGB values (brightness, contrast, horizontal/vertical position values) to factory default settings. • **Green Brightness Dn**: Adjusts the Green brightness level down. • **Green Brightness Up**: Adjusts the Green brightness level up. • **Green Contrast Dn:** Adjusts the Green contrast level down. • **Green Contrast Up**: Adjusts the Green contrast level up. • **Horizontal Position Down**: Adjusts the horizontal position of the video image down. • **Horizontal Position Up**: Adjusts the horizontal position of the video image up. • **Phase Down**: *TBD* • **Phase Up**: *TBD* • **Red Brightness Dn**: Adjusts the Red brightness level down. • **Red Brightness Up**: Adjusts the Red brightness level up. • **Red Contrast Dn**: Adjusts the Red contrast level down. • **Red Contrast Up**: Adjusts the Red contrast level up. • **Sync On Green**: *TBD* • **Undo**: Undoes the last change. • **Vertical Position Down**: Adjusts the vertical position of the video image down. • **Vertical Position Up:** Adjusts the vertical position of the video image up.
SIP	*These functions are intended for internal use only, no custom settings are required.*

Advanced Channel Codes (Cont.)	
Secondary Network Interface	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), several **Secondary Network Interface** options are available (as *Advanced channel* codes). Use these options to create buttons that allow you to view the following Primary Network Interface information, directly from the panel: • **DHCP/Static**: Displays the panels' current communication mode (*DHCP* or *Static*). • **Domain**: Displays the name of the DNS Domain that the panel belongs to. • **Encryption**: *TBD* • **Gateway Address**: Displays the gateway value currently assigned to the panel. • **Generate Passphrase**: *TBD* • **Host Name:** Displays the host name of the panel. • **IP Address**: Displays the primary IP Address assigned to the panel. • **Primary DNS Address**: Displays the address of the primary DNS server being used by the panel for host name lookups. • **Secondary DNS Address:** Displays the address of the secondary DNS server being used by the panel for host name lookups. • **Setup Secondary Network Interface**: *TBD* • **Subnet Mask**: Displays the subnetwork address mask assigned to the panel. • **Wireless Authentication**: *TBD* • **Wireless Default WEP Key**: *TBD* • **Wireless SSID**: *TBD* • **Wireless WEP Key 1**: *TBD* • **Wireless WEP Key 2**: *TBD* • **Wireless WEP Key 3**:*TBD* • **Wireless WEP Key 4**:*TBD*
Streaming	*These functions are intended for internal use only, no custom settings are required.*
System Recovery	*These functions are intended for internal use only, no custom settings are required.*
TakeNote	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following TakeNote options are available (as *Advanced* channel codes): • **Canvas - Blackboard**: Changes the canvas area to an opaque black background. • **Canvas - None**: Changes the canvas area to transparent. • **Canvas - Whiteboard**: Changes the canvas area to an opaque white background. • **Clear**: Clears the canvas on the source panel only. • **Clear From All Panels**: Clears the canvas on the source panel as well as all communicating target panels. • **Clear From All and Clear Undo**: Undo last Clear and/or Clear From All actions. • **Print**: Prints the canvas area. • **Redo**: Redo the last action. • **Save Image**: Saves a screen capture of the canvas area. • **Style - Dashed Line**: Sets the dashed line style for all annotations • **Style - Dotted Line**: Sets the dotted line style for all annotations • **Style - Solid Line**: Sets the solid line style for all annotations • **Toggle/Activate Annotation**: Activates (toggles on/off) the TakeNote canvas. • **Tool - Draw**: Freehand draw tool. • **Tool - Ellipse**: Ellipse draw tool. • **Tool - Line**: Line draw tool. • **Tool - Pointer**: Pointer draw tool. • **Tool - Rectangle**: Rectangle draw tool. • **Tool - Select/Grab**: Select/grab tool • **Tool - Shape**: Shape draw tool • **Tool - Text (No Keyboard):** Places a text cursor in the canvas area to allow you to type letter using your PC keyboard. • **Tool - Text (Shows Keyboard)**: Allows you to enter text in the canvas area using an on-screen keyboard. • **Undo**: Undo the last action.

Advanced Channel Codes (Cont.)	
Time	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following Time options are available (as *Advanced* channel codes): • **Get Time:** *TBD* • **Set Day Down**: *TBD* • **Set Day Up**: *TBD* • **Set Hour Down**: *TBD* • **Set Hour Up**: *TBD* • **Set Minute Down**: *TBD* • **Set Minute Up**: *TBD* • **Set Month Down**: *TBD* • **Set Month Up**: *TBD* • **Set Second Down**: *TBD* • **Set Second Up**: *TBD* • **Set Time**: *TBD* • **Set Year Down**: *TBD* • **Set Year Up**: *TBD*
Video	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **Video** options are available (as *Advanced* channel codes): • **Black and White**: *TBD* • **Brightness Down**: Adjusts the current brightness level down. • **Brightness Up**: Adjusts the current brightness level up. • **Contrast Down**: Adjusts the current contrast level down. • **Contrast Up**: Adjusts the current contrast level up. • **Default**: Resets all video settings to their default values. • **Hue Down**: Adjusts the current hue level down. • **Hue Up**: Adjusts the current hue level up. • **Input**: *TBD* • **Interlace**: *TBD* • **Saturate Down**: Adjusts the current saturation level down. • **Saturate Up**: Adjusts the current saturation level up. • **Standard**: *TBD* • **Undo**: Undoes the last video setting change.
Video RGB	With Channel Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **Video RGB** options are available (as *Advanced* channel codes): • **Active Slot:** *TBD* • Save: *TBD* • Slot 1 Select: *TBD* • Slot 1 Setup: *TBD* • Slot 2 Select: *TBD* • Slot 2 Setup: *TBD* • Slot 3 Select: *TBD* • Slot 3 Setup: *TBD* • Slot 4 Select: *TBD* • Slot 4 Setup: *TBD*
Video RGB Streaming	*These functions are intended for internal use only, no custom settings are required.*
Virtual Keyboard	*These functions are intended for internal use only, no custom settings are required.*

Level Codes

If the Level Control Type is set to either Relative or Absolute (in the Programming tab of the Properties window), then the Level Port and Level Code fields are enabled (FIG. 339).

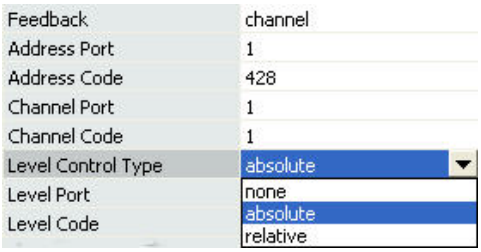


FIG. 339 Properties window (Programming tab) - Level Control Type

When a button, page or popup page's *Level Port* is set to **0 - setup port**, then various level code options are made available.

Click the down arrow next to **Level Code** in the Programming tab of the Properties window to view the level code options (FIG. 340).

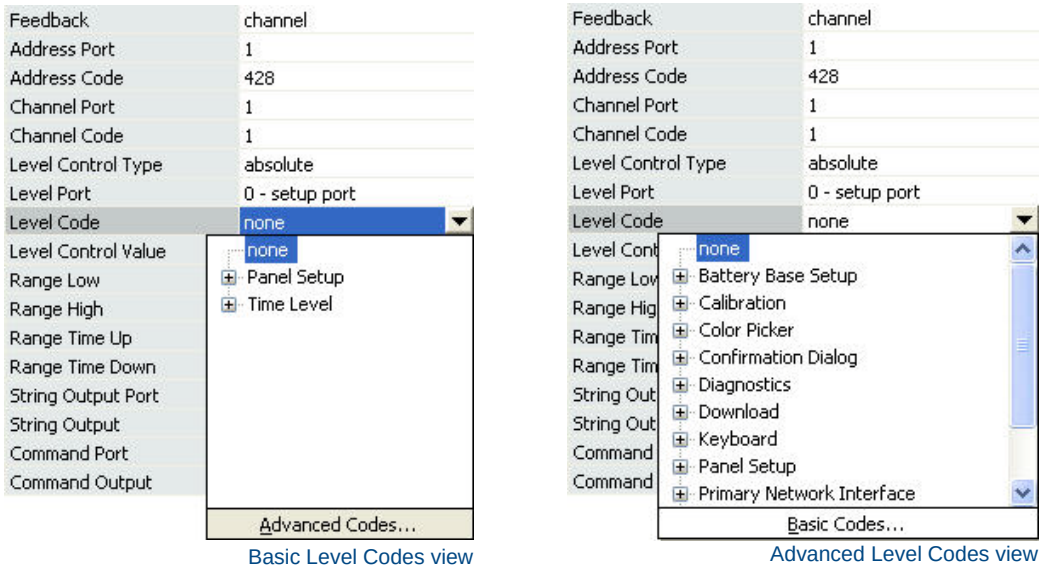


FIG. 340 Properties window (Programming tab) - Basic & Advanced Level Codes

These level code options are separated into two main categories: *Basic* and *Advanced*, and the options available depend on what type of element is selected (page, popup page or button). Furthermore, different button types support different level codes. By default, the Level Codes item in the Programming tab displays the Basic Level Codes.

To switch the view to Advanced Level Codes, click on **Advanced Codes** at the bottom of the code list window.

NXP-PLV Reserved Level Codes (1-11)

The NXP-PLV will define a set of Channel codes (1-7) and Level codes (1-11) on Port 1 that are reserved for hardware functionality.

These codes are considered reserved for the device and cannot be re-assigned to other pages or buttons in the panel project.

The following table lists the reserved **Level** Codes for the NXP-PLV:

reserved Level Codes for the NXP-PLV		
Port	Code	Description
1	1	1 Pan (Joystick - Left/Right)
1	2	2 Tilt (Joystick - Up/Down)
1	3	3 Zoom (Joystick - Twist - Positional)
1	4	4 Focus (Knob - Near - Positional)
1	5	5 Iris (Knob - Middle - Positional)
1	6	6 Speed (Knob - Far)
1	7	7 Pan (Compensated)
1	8	8 Tilt (Compensated)
1	9	9 Zoom (Joystick - Twist - Speed)
1	10	10 Focus (Knob - Near - Speed)
1	11	11 Iris (Knob - Middle - Speed)

Basic Level Codes

With the Level Port property set to **0 - setup port** (in the Programming tab of the Properties window), several Basic Level Codes options are available (click the + sign to expand each category):

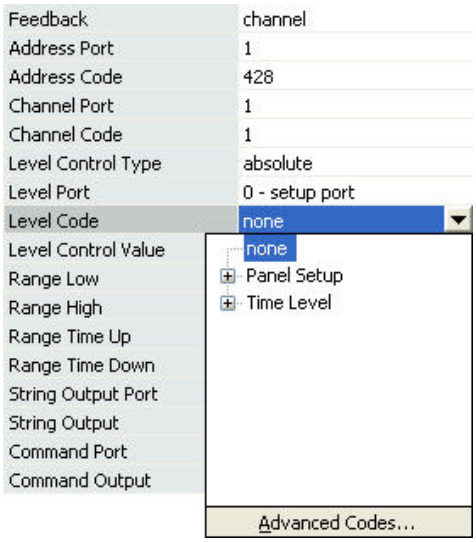
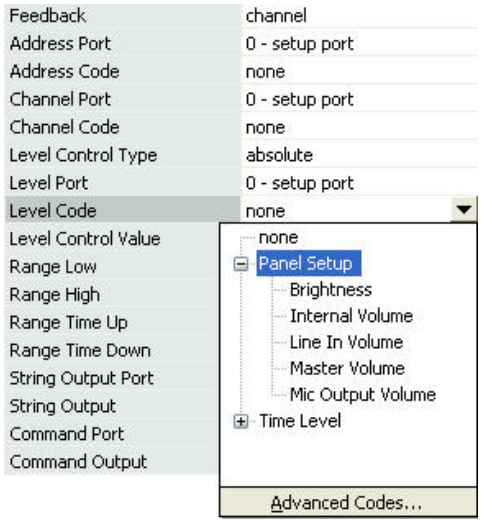
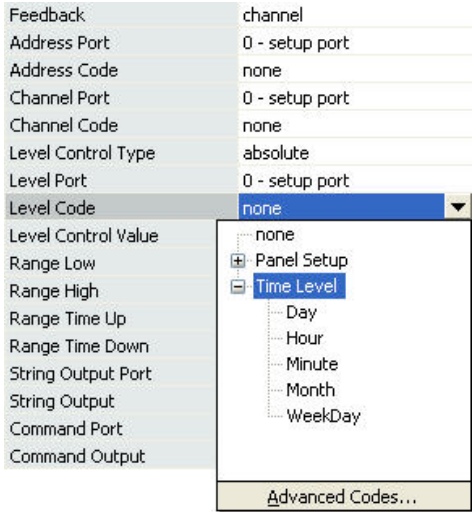


FIG. 341 Properties window (Programming tab) - Basic Level Codes

Basic Level Codes	
Panel Setup	With Level Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **Panel Setup** options are available (as *Basic* level codes):  • Brightness • Internal Volume • Line In Volume • Master Volume • Mic Output Volume
Time Level	With Level Port set to **0 - setup port** (in the Programming tab of the Properties window), the following **Time Level** options are available (as *Basic* level codes):  • Day • Hour • Minute • Month • WeekDay

Advanced Level Codes

With the Level Port property set to **0 - setup port** (in the Programming tab of the Properties window), several Advanced Level Codes options are available via the *Advanced Codes* option (click the + sign to expand each category):

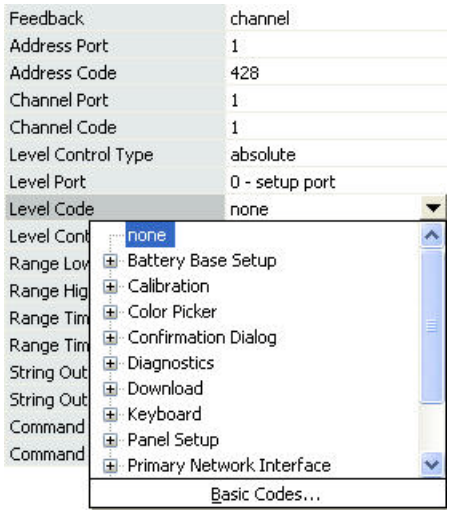


FIG. 342 Properties window (Programming tab) - Advanced Level Codes

Advanced Level Codes	
Battery Base Setup	*These functions are intended for internal use only, no custom settings are required.*
Calibration	
Color Picker	
Confirmation Dialog	
Diagnostics	
Download	
Keyboard	
Panel Setup	
Primary Network Interface	
Secondary Network Interface	
TakeNote	
Video	

Level Control Parameters

The **Level Control Type** options (set in the Programming tab of the Properties Control Window) allow General and Multi-State General buttons to directly control a level without the need for NetLinx code. Select a level control type for the selected button (*Absolute*, *Relative* or *None*):

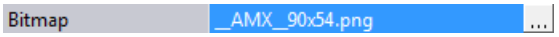
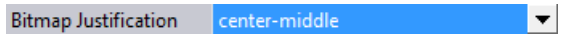
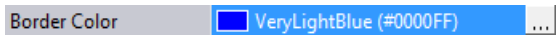
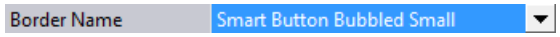
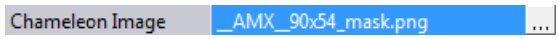
- **Absolute**: The button acts like a preset and sets the level to the desired value.
- **Relative**: The button increments or decrements the current level value by a fixed amount.

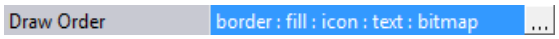
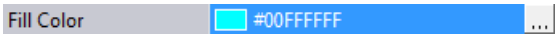
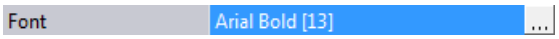
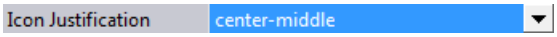
These options require the following additional parameters to be defined:

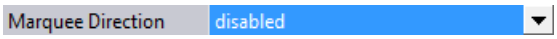
Level Control Parameters	
• Level Port:	Select or enter the port to which the Level code will be applied. Select *0 (Setup port)* or *1* as the level port for this button.
• Level Code:	Select or enter the level code sent to the master on the selected port. Select *Auto-Assign* to automatically assign the level code to this button.
• Level Control Value:	For *Absolute* level control, this value determines the level value that will be recalled by this button. For *Relative* level control, this value determines the amount of adjustment relative to the current level resulting from this button. For relative level control, this value can be entered as a positive integer (to raise the relative level setting) or a negative integer (to lower the relative level setting).
• Range Low:	Set the bottom of the level range (0-255).
• Range High:	Set the top of the level range (0-255).
• **Level Control Repeat** *(Relative Level Control only)*:	This value determines the repeat time (in 1/1000th-second increments) for relative level control. For example, if this value is set to 1000, the user can hold the button down for one second to cause the level to raise or lower repeatedly (according to the specified Level Control Value) without having to press the button each time.
• Range Time Up:	Set the time (in 1/10th-second increments) that it takes to ramp from the bottom to the top of the specified range (default = **2**).
• Range Time Down:	Set the time (in 1/10th-second increments) that it takes to ramp from the top to the bottom of the specified range (default = **2**).

State Properties

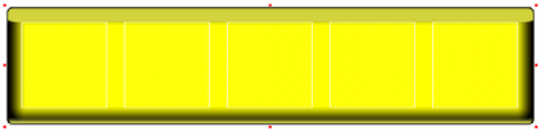
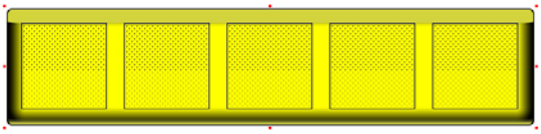
The following table describes all State Properties, accessible in the *States* tab of the Properties window:

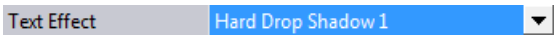
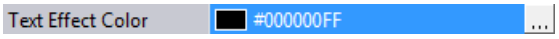
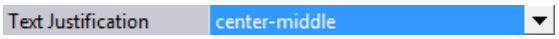
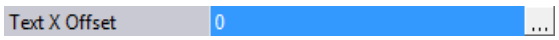
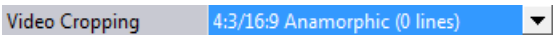
State Properties	
Bitmap	 To apply an image file as the background image to the selected state(s), click the browse button (**...**) to open the Select Resource dialog, where you can select an image file from among those imported into the project. If pairs of image resources exist that end in *off/*on, * f/*n, *0/*1, *1/*2 (case insensitive), and the first in the pair is applied to the Off state of a General button, the second will be automatically applied to the On state to make it easier to set up images on a General button.
Bitmap Justification	 To set or reset the justification setting for the bitmap (on the selected state(s)), click the down-arrow and select an option from the list. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Bitmap X Offset	 Available only if the Bitmap Justification State property has been set to *Absolute*). • To apply an X and/or Y offset to the bitmap (on the selected state(s)), enter the value for the desired offset (in pixels) in these text fields. • Alternatively, you can click the browse button (**...**) to open the Image/Text Positioning dialog where you can make several alignment adjustments to the bitmap, icon and text elements of the button, for each state.
Bitmap Y Offset	 Available only if the Bitmap Justification State Property has been set to *Absolute*). • To apply an X and/or Y offset to the bitmap (on the selected state(s)), enter the value for the desired offset (in pixels) in these text fields. • Alternatively, you can click the browse button (**...**) to open the Image/Text Positioning dialog where you can make several alignment adjustments to the bitmap, icon and text elements of the button, for each state.
Border Color	 To change the border color for the selected state(s), click the browse button (**...**) to open the Colors dialog. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Border Name	 To change the Border Name for the selected button, click Border Name, and select the desired border from the drop-down list. • If a Border Style was specified (in the General tab), then the borders listed here are limited to those contained in the selected Border Style. • If no Border Style was specified (*none*), then all border names are available in the provided list. • See page 386 for details on Border Styles. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Chameleon Image	 This field allows you to apply a Chameleon Image to the selected state(s). ***Note**: This property is only available only if the Border Name has been set to **None**.* • Chameleon Images can be used to create special effects such animated glow and drop-shadows. • Click the browse button (**...**) to open the Select Resource dialog, where you can select an image to apply as a Chameleon Image. • See page 322 for details on Chameleon Images.

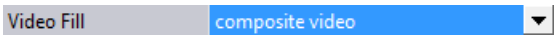
State Properties (Cont.)	
Draw Order	 This field allows you to specify the order in which the elements of a button, page or popup page are drawn. • By default, the draw order is: 1) fill, 2) bitmap,3) icon, 4) text, 5) border. • Click the browse button (**...**) to access the *State Draw Order* dialog to change the draw order. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column (see the List Box Buttons* section on page 195 *for details).*
Fill Color	 To change the fill color for the selected state, click the browse button (**...**) to open the Colors dialog. For bargraph buttons, the preview image in the State Manager works differently than for the other button types. For bargraph buttons, the on and off states are used to indicate a level setting rather than a push/release. As a result, the button image in the Design View window will indicate the bargraph button as it will appear on the touch panel, but the thumbnails in the State Manager window indicate each state as a separate preview image. For example, the bargraph button shown below uses yellow as the On state fill color, and green as the Off state fill color. In the State Manager window you would see the On state (yellow) and the Off state (green) as individual thumbnails. The Button Preview window works differently for bargraph buttons than for the other button types. Rather than using the Push button to view the different states, click and drag on the slider with your mouse cursor (in the Button Preview window) to preview the feedback. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Font	 To change the font used for text on the selected state(s), click the browse button (**...**) to open the Font dialog, where you can select a Font, Style and Size for the button text. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Icon Justification	 To set or reset the justification setting for the icon (on the selected state(s)), click the down-arrow and select an option from the list. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Icon Slot	 To apply an icon to the selected state(s), click the browse button (**...**) to open the Select Resource dialog, where you can select a slot assignment (icon) to apply.
Icon X Offset	 To apply an X and/or Y offset to the icon (on the selected state(s)), enter the value for the desired offset (in pixels) in these text fields. Alternatively, you can click the browse button (**...**) to open the Image/Text Positioning dialog where you can make several alignment adjustments to the bitmap, icon and text elements of the button. ***Note**: This property is only available only if the Icon Justification State property has been set to **Absolute**.*

State Properties (Cont.)	
Icon Y Offset	 To apply an X and/or Y offset to the icon (on the selected state(s)), enter the value for the desired offset (in pixels) in these text fields. Alternatively, you can click the browse button (**...**) to open the *Image/Text Positioning* dialog where you can make several alignment adjustments to the bit-map, icon and text elements of the button. ***Note**: This property is only available only if the Icon Justification State property has been set to **Absolute**.*
Marquee Direction	 This field allows you to specify the direction in which marquee text will move. By default, this property is set to *Disabled*. Click inside the field to activate the down arrow, to select from the other marquee direction options: The marquee direction options include: • **Disabled** - When this property is set to Disabled, the text on the button will not be treated as marquee text. • **Scroll left** - Text scrolls horizontally to the left. • **Scroll right** - Text scrolls horizontally to the right. • **Ping-pong** - Text "bounces" back and forth horizontally between the left and right boundaries of the button area. • **Scroll up** - Text scrolls vertically upward. • **Scroll down** - Text scrolls vertically downward. ***Note**: Both Marquee Direction and Marquee Repeat are disabled if Word Wrap is set to Yes.*
Marquee Repeat	 This field allows you to specify whether the marquee text element on a button will appear to repeat the text string once it has moved all the characters beyond the boundaries of the button. The movement of marquee text is specified by the Marquee Direction button state property. By default, this property is set to *No*. To enable repeat marquee text, click inside the field to activate the down arrow to change to Yes. ***Note**: Both Marquee Direction and Marquee Repeat are disabled if Word Wrap is set to Yes.*
Overall Opacity	 Use this field to specify the level of opacity for the selected button (0 - 255, where 0 is totally transparent, and 255 is totally opaque). The default is ***255***. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*

State Properties (Cont.)	
Scale Bitmap To Fit	 Available only if the Bitmap selected for this button/state is a dynamic image. The options available for *Scale Bitmap To Fit* depend on the panel type associated with your project: • **No** - The Dynamo Resource image will not be scaled at all, and the image will be arbitrarily centered on the container button, popup or page. If the Dynamo Resource image is larger than it's container, the image will be cropped on all sides by equal amounts. *This is the default setting.* Use the Bitmap Justification State property to position the dynamic image bitmap within the button borders. • **2x** - This option doubles the size of the *Dynamo Resource image*. Note that this option is only available for Dynamo Resource Images (not for Dynamo Dynamic Images). If the resulting image is larger than it's container, the image will be cropped on all sides by equal amounts. • **Scale To Fit** - This option automatically resizes the *Dynamo Dynamic image*, maintaining the aspect ratio of the image. Note that this option is available only for Dynamo Dynamic Images (not for Dynamo Resource Images) This option scales the Dynamo Dynamic Image *down* to fit the container button, popup or page. It will not scale Dynamo Dynamic Images up to fit. ***Note**: To automatically scale the dynamic image (down only) to fit the button, click the down-arrow and select **Scale To Fit** (default = No).*
Sound	 To change or apply a new sound file to the selected state(s), click the browse button (**...**) to open the *Select Resource* dialog, where you can select a sound file (WAV or MP3) from among those imported into the project. ***Note**: Sub-Pages and Sub-Page View buttons do not support the Sound property.*
Streaming Source	 Enter the URL or IP Address of the server that will provide the video stream. ***Note**: This property is available only if **Streaming Video** is selected as the Video Fill). Streaming Video is only available as a Video Fill option if the project specifies a touch panel that supports streaming video.*

State Properties (Cont.)	
Sub-Page Layout Color	Sub-Page Layout Color Black (#000000FF) ... This property is available only for Sub-Page View buttons. It provides the ability to change the color of the Sub-Page placeholders for Sub-Page View buttons in the Design View. Use this feature in situations where the Sub-Page View button uses a fill color or bitmap that provides too little contrast to make the Sub-Page placeholders readily visible on-screen. For example, the Sub-Page placeholders are difficult to see in white on a Sub-Page View button with a light yellow fill:  Using this property, the Sub-Page Layout color could be changed to a darker color to provide enough contrast:  ***Note**: This color setting does not affect the color settings of the Sub-Page View button, or any other element of the Scrolling Region when it is displayed on the touch panel. It only affects the Design View in TPDesign4.*
Text	Text OK ... To change or enter the text to be displayed on the selected state(s), click the browse button (**...**) to open the Enter Text dialog, where you can type the new button text. Use the **Preview Using Font** option to view the text as it will appear in the selected font, style and size (on by default). • Unicode characters may be entered via the Enter Text dialog only (not through in-place editing in the States tab of the Properties window). • When Unicode text is input, the name of the button will not match it's Off state text. ***Note**: Formatting codes can be used in the state text for Bargraph and Multi-State Bargraph buttons.* ***Note**: For page and button state text properties, TPD4 (v3.1 or higher) supports complex script languages (to the extent that the True Type font currently selected for that state supports the language in question). See the True Type Font Support* section on page 103 *for details.*
Text Color	Text Color White (#FFFFFFFF) ... To change the text color for the selected state, click the browse button (**...**) to open the *Colors* dialog. ***Note**: For List Box buttons, this property applies to all the buttons in a selected column.*

State Properties (Cont.)	
Text Effect	 Text effects are graphic effects that can applied to button/page/popup text (for example, the Glow effect applies a neon glow or halo effect to the text on the selected button/states(s). Each text effect is available in several variations ((i.e. *Small*, *Medium*, *Large* or *XtraLarge*). To apply a text effect to the button text, click the browse button (**...**) to access the Text Effect sub-menu. This sub-menu presents all available text effects, sorted by type. • Click the + symbol next to any effect type in the sub-menu to see all of the variations on that effect. • Once you have selected a text effect, use the *Text Effect Color* field to specify a color for the effect. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Text Effect Color	 If you have selected to apply a text effect, use this field to specify the color of the selected effect. Click the browse button (**...**) to open the Colors dialog. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Text Justification	 To set or reset the justification setting for the button text (on the selected state(s)), click the down-arrow and select an option from the list. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*
Text X Offset	 To apply an X and/or Y offset to the text (on the selected state(s)), enter the value for the desired offset (in pixels) in these text fields. Alternatively, you can click the browse button (**...**) to open the Image/Text Positioning dialog where you can make several alignment adjustments to the bitmap, icon and text elements of the button. ***Note**: This property is available only if the Text Justification State property has been set to **Absolute**).*
Text Y Offset	 To apply an X and/or Y offset to the text (on the selected state(s)), enter the value for the desired offset (in pixels) in these text fields. Alternatively, you can click the browse button (**...**) to open the Image/Text Positioning dialog where you can make several alignment adjustments to the bitmap, icon and text elements of the button. ***Note**: This property is available only if the Text Justification State property has been set to **Absolute**).*
Video Cropping	 Use this field to specify the number of scan lines to be removed from both the top and bottom of the video signal. For best results, set the video button's aspect ratio to match the video input aspect ratio. ***Note**: This property is only available if the Video Fill State property is set to either **Composite Video** or **Component/RGB Video**.*

State Properties (Cont.)	
Video Fill	 This option is only available for video-capable panels). Click the down arrow to select from a drop-down list of video formats that are supported by the touch panel specified in your project. ***Note**: Video-capable Modero panels support Composite video, and Enhanced Modero panels support Composite, Component/RGB and Streaming video formats.* • If you have specified the NXP-TPI4, click the down-arrow to select from the list of available video slots on the TPI4 (*video slot 1,2,3 or 4*) to use as the source for this video fill. • If you select *Streaming Video* as the Video Fill, then the Streaming Source state property is made available. Enter the URL or IP Address of the server that will provide the video stream.
Video Touch Pass-Thru	 Select **Yes** from the drop-down menu to enable video pass-thru (disabled by default). ***Note**: This property is enabled only if the Video Fill State property has been set to either **Composite Video** or **Component/RGB Video**.* • Video pass-thru allows you to pass touch/control information from a touch input device (touch panel, mouse or keyboard) through a NXP-TPI/4 to a controlled device with video-out capabilities. • This feature is also used in conjunction with the MPS (mouse pass-thru) and KPS (keyboard pass-thru) commands.
Word Wrap	 Use this option to enable the wrapping of text strings that are too long to be displayed across the page on one line. ***Note**: Wrapping takes place only at a space. it will not wrap in the middle of continuous text.* Click the down-arrow and select Yes or No from the drop-down list (default = No). Note that both Marquee Direction and Marquee Repeat are disabled if Word Wrap is set to *Yes*. ***Note**: For List Box buttons, this property applies to all the buttons in the selected column.*

Supported Image File Types

TPD4 supports the following image file types:

- **BMP** (Windows bitmap)
- **IFF** (Interchange File Format)
- **JPG** (Joint Photographic Expert Group)
- **PCT** (Macintosh Pi ct
- **PCX** (PC (Zsoft) Paintbrush)
- **PNG** (Portable Network Graphic)
- **PSD** (Photoshop)
- **TGA** (TrueVision Targa)
- **WMF** (Windows Meta File)
- **EPS** (Encapsulated Post Script)
- **FPX** (FlashPix)

Notes:

- Of all the image file formats supported by TPD4, only one accommodates transparency as a color: **PNGs**.
- For the transparent color to be interpreted correctly by TPD4, the PNG file must be saved with RGB colors.
- Unless you are actually using transparency, JPGs are recommended over PNGs, since they are usually slightly smaller in size.

True Type Font Support

Since G4 panels have the ability to decode and display Windows True Type Font files (TTF), TPD4 directly utilizes TTF files.

Fonts are presented in the Properties window (States tab), as well as the Button Selection/Draw toolbar and the Add Page and Add Popup Page dialogs.

The TTF files listed represent those TTF files installed in Windows with their available point sizes.

Complex Script Support

For page and button state text properties, TPDesign4 supports complex script languages (to the extent that the True Type font currently selected for that state supports the language in question).

These languages include (but are not limited to) Arabic, Hebrew, Thai and Devangari.

Complex-script rendering is supported on the following panel types:

- MX-Series panels
- MVP-9000i
- MVP-5150/5100
- MVP-5200i
- NXD-430/435
- NXD-500i

Most languages can be entered into the state property field via the Windows language bar.
However, some languages (notably Hindi and Tamil) are not supported by code-pages. These languages will display ??? for characters entered via the language bar, even if the selected font supports the language.
However, text in these languages can still be pasted via the clipboard or via the Alt-<Scan Code> method.

Formatting Codes

Formatting codes can be used in the text for Bargraph and Multi-State Bargraph buttons. The following formatting codes will be replaced with the identified values:

- **$P** - level percentage
- **$V** - raw level value
- **$L** - range low
- **$H** - range high
- **$A** - adjusted level value (raw level value - range low)
- **$R** - range (range high - range low)
- **$$** - $ character

Working With States

Overview

All G4 panel entities (Pages, popup pages and buttons) have at least one state.

- Pages, Standard Popup Pages and Sub-Pages have only one state.
- General, Bargraph and Text Input buttons have only two states (on/off).
- Joystick, Computer Control, TakeNote and Sub-Page View buttons only use one state (Off).
- Multi-State General and Multi-State Bargraph buttons can have up to 256 states.
- States start at 1.

The *State Manager* window allows you to view and modify individual states. The State Manager window supports full Cut, Copy, Delete, Insert, Replace and Paste as well as drag and drop capabilities. The State Manager context window (open via right mouse click on any thumbnail in the State Manager) support allows the user to Add single or multiple states, Replace states, Insert single or multiple states and Remove states.

- For Multi-State General buttons the different states are used to animate a button from Off to On (*Range Time Up*) and back again to Off (*Range Time Down*). When the button is turned on it will display all the assigned states from first to last with a specified time interval between each state's display. When the button is turned back off, the states will be displayed in reverse order. The interstate time intervals are user definable in 1/10th second increments. A zero entry will automatically advance / retreat to the ending / beginning state without displaying any intervening states.
- For Multi-State Bargraph buttons, the level will directly reflect the displayed state. You can set an allowable range within a bargraph that has states. Anything outside of that range will not be represented by a state.
- For buttons with multiple states, Send Commands can set the state number, provided it is not a level type button.

State Manager Window

The *State Manager window* is typically located along the bottom edge of the screen (although it is a dockable window and you may move it anywhere you like) and is used to view/edit the various States of a selected button. Each state of the selected button is displayed as a thumbnail image in this window (FIG. 343):

FIG. 343 State Manager Window

- To display the State Manager window, select **View > State Manager.**
- See the *State Manager Window* section on page 30 for details.

Adding States To a Multi-State Button

There are several ways in which new states can be added to a multi-state button:

Add States

The **Add States** option provides a method of adding states to a multi-state button by duplicating an existing state a specified number of times:

To add States to a Multi-State button, via the *Add States* dialog:

1. Select a Multi-State Button in the Design View.
2. Select a State in the State Manager window.
3. Select **Button > Add States** to open the *Add States* dialog (FIG. 344).

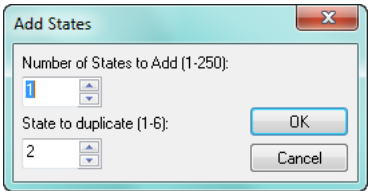


FIG. 344 Add States dialog

4. In the **Number of States to Add (1-254)** field, enter the number of states that you want to add to this button (max = 254). Alternatively, you can use the up and down arrows to change the number.
5. In the **State to Duplicate (1-<#>)**, enter the number of the state that you want to duplicate.
   - By default, the selected state is set as the state to be duplicated.
   - The state specified here will be used for all new states added via this dialog until this value is changed.
6. Click **OK** to close the *Add States* dialog. The new States are added after the last state of the button (in the State Manager window).

Insert States

The **Insert States** option provides a method of inserting states into a multi-state button by duplicating an existing state a specified number of times:

To insert States into a Multi-State button, via the Insert States dialog:

1. Select a Multi-State Button in the Design View.
2. Select a State in the State Manager window.
3. Select **Button > Insert States** to open the *Insert States* dialog (FIG. 345):

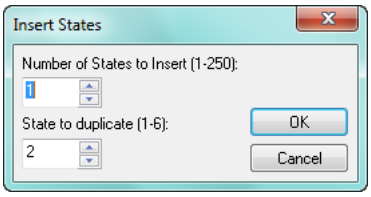


FIG. 345 Insert States dialog

4. In the **Number of States to Insert (1-254)** field, enter the number of states that you want to insert into this button (max = 254). Alternatively, you can use the up and down arrows to change the number.
5. In the **State to Duplicate (1-<#>)**, enter the number of the state that you want to duplicate.
   - By default, the selected state is set as the state to be duplicated.
   - The state specified here will be used for all states inserted via this dialog until this value is changed.
6. Click **OK** to close the *Insert States* dialog. The new States are inserted after the selected state (in the State Manager window).

Copying/Pasting States

States may be copied and pasted via clipboard memory:

1. Select the button from which the states will be copied.
2. In the State Manager window, select one or more states.
   - Hold down the Ctrl key while left-clicking to add states to the selection.
   - Left-click + Shift to select a range of states.
3. Press **Ctrl-C** to copy the selected states to the clipboard (or select **Edit > Copy** from the main menu or click on the **Copy** button from the main toolbar, or right click and select **Copy** from the context menu).
4. Select a multi-state button as a target for the paste operation.
5. In the State Manager, select the state prior to which the new states will be inserted.

NOTE

To add the copied states to the end of the series, ensure that no states are currently selected in the State Manager (or select the last state in the series).

6. Press **Ctrl-V** to paste the states from the clipboard (or select **Edit > Paste** from the main menu or click on the **Paste** button from the main toolbar, or right click and select **Paste** from the State Manager context menu).

Adding States via Drag-and-Drop

States can be added to a multi-state button via drag-and-drop in the State Manager window:

1. Select a multi-state button in the Design View.
2. In the State Manager window, right-click on the State that you want to duplicate.
3. Holding the right mouse button, drag the selected State to the desired position. This will highlight a second (target) State in the State Manager window.
4. Release the right-mouse button to invoke the State Manager *Drag-and-Drop Menu* (see below).
5. Select **Insert copy before State <#>** .

State Manager Drag-and-Drop Menu

To access the *State Manager Drag-and-Drop menu*, select a button state (thumbnail view), and hold the left mouse button down while dragging the selected state to another location in the *State Manager* window (see FIG. 343 on page 293).

The options in the State Manager Drag-and-Drop menu are described below:

- **Copy over State <#>** - Select to replace the target (highlighted) State with the source (selected) State. This option is only presented if the Source (selected) State is dragged directly above the target (highlighted) State (FIG. 346):

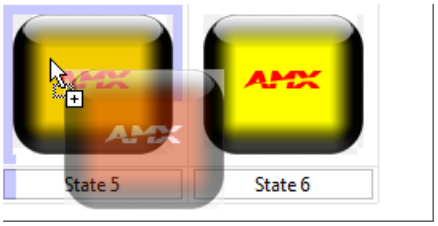


FIG. 346 State Manager Window - Replacing a State (dragging onto another State Preview)

The remaining options are available if the cursor is placed either directly above the target (highlighted) State, or between two States (FIG. 347):

- **Insert copy before State <#>** - Select to insert a copy of the Source (selected) State directly before the target (highlighted) State. In this case, the original Source State is left in place.
- **Move before State <#>** - Select to move the Source (selected) State directly before the target (highlighted) State.
- **Cancel** - Select to cancel the drag-and-drop operation.

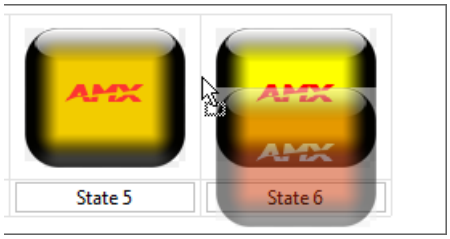


FIG. 347 State Manager Window - Replacing a State (dragging between two State Previews)

Replacing States

There are two ways to replace states in a multi-state button:

Replacing States From the Clipboard

1. Select a multi-state button in the Design View.
2. In the State Manager window, select the source state(s).
   - Hold down the Ctrl key while left-clicking to add states to the selection.
   - Hold down the Shift key while left-clicking to add a range of states to the selection.
3. Select **Copy** from the Edit menu or the State Manager Context Menu, or press Ctrl-C.
4. Select the multi-state button whose states will be replaced.
5. Select the destination states.
6. Select **Paste** from the Edit menu or the State Manager Context Menu, or press Ctrl-V.
   - If the number of destination states is equal to the number of source states, the destination states are replaced one-for-one from the clipboard.
   - If the number of destination states is less than the number of source states, the destination states are replaced one-for-one until all have been replaced, with remaining source states being unused.
   - If the number of destination states is greater than the number of source states, the destination states are replace one-for-one until all source states have been used, at which point replacing will start again at the beginning of the source states until all destination states have been replaced.

Replacing States via Drag-and-Drop

1. Select a multi-state button in the Design View.
2. In the State Manager window, select the source state(s).
3. Press and hold the right mouse button, and drag the mouse over the first state to be replaced.

Beginning at the state the drop occurred over, states will be replaced one-for-one until either the number of source states have been used or the end of the states collection is reached.

NOTE

*The same operation can be performed with a left mouse button drag-and-drop, selecting **Copy over State <#>** from the State Manager Drag-and-Drop Menu.*

Setting the Maximum Active State For a Button

You can set the maximum active state on a multi-state button by selecting the last state in a sequence (in the State Manager window) and selecting the **States > Set As Max Active State** option. The state tagged as the max active state will be the last one included in the multi-state sequence.

All states beyond the max active state are ignored when the button is pushed.

Note that the states that occur after the max active state in the sequence are displayed with crosshatching across the labels on the thumbnails in the State Manager window, to indicate which states will not be included in the multi-state sequence.

Setting State Properties

The ability to set the State Properties (including *border name*, *border color*, *fill color*, *text color*, *video fill*, *bitmap*, *bitmap justification*, *icon assignment*, *icon justification*, *font*, *text*, *text justification*, *word wrap preference* and *sound)* is provided at the state level, via the Properties Window - States Tab. See the following sections for details:

- Setting State Properties: **General** buttons - page 141
- Setting State Properties: **Multi-State General** buttons - page 142
- Setting State Properties: **Bargraph** buttons - page 144
- Setting State Properties: **Multi-State Bargraph** buttons - page 146
- Setting State Properties: **Joystick** buttons - page 151
- Setting State Properties: **Text Input** buttons - page 153
- Setting State Properties: **Computer Control** Buttons - page 155
- Setting State Properties: **TakeNote** buttons - page 156
- Setting State Properties: **List Box Container** Buttons - page 206
- Setting State Properties: **List Box Button Columns** - page 210
- Setting State Properties: **Sub-Page View** Buttons - page 158

Using the All States Option

Use the **All States** option (in the States tab of the Properties window) to apply any changes you make to all states on the selected button.

Note that if you have multiple buttons selected (Shift+click to select multiple buttons a page), the All States option only affects states for the button that has Edit Focus.

The button with edit focus would be the last one selected, and is indicated by having red-colored square handles (as opposed to the black squares that indicate that a button is selected, but does not currently have edit focus).

Removing States From A Button

States can be removed from a Multi-State General or Multi-State Bargraph button (the number of states is fixed for the other button types) by either deleting them from the collection, or by cutting them to the clipboard.

Multi-General or Multi-Bargraph buttons must have at least two states. Actions that would cause the number of states to drop below two are not allowed.

Deleting States

1. Select the states to be deleted. Hold down the Ctrl key while left-clicking to add states to the selection. Hold down the Shift key while left-clicking to add a range of states to the selection.
2. Delete the selected states by selecting the **Edit > Delete**, **State Manager Context Menu > Delete**, or the **Del** key.

Cutting States To the Clipboard

1. Select the states to be cut. Hold down the Ctrl key while left-clicking to add states to the selection. Hold down the Shift key while left-clicking to add a range of states to the selection.
2. Cut the selected states to the clipboard by selecting **Edit > Cut**, **State Manager Context Menu > Cut**, or the **Ctrl-X** keyboard accelerator.

Reordering States On A Button

Changing the order of states in a Multi-State General or Multi-State Bargraph button can be accomplished either through the clipboard or by drag-and-drop:

Reordering States Through the Clipboard

1. In the State Manager window, select the states to be moved.
   - Ctrl + click to select multiple states individually.
   - Shift + click to select a range of states.
2. Cut the selected states to the clipboard (Ctrl-X).
3. If the states are to be moved to the end of the collection, ensure that no states are currently selected in the State Manager (click anywhere outside of a state thumbnail, or press ESC). Then, paste the states from the clipboard by selecting
4. **Edit > Paste**, **State Manager Context Menu > Paste**, or the **Ctrl-V** keyboard accelerator.
5. If the states are to be moved elsewhere in the collection, first left-click to select the state prior to which the new states will be inserted. Then insert the states from the clipboard by selecting **Edit > Insert**, **State Manager Context Menu > Insert**, or the **Ctrl-V** keyboard accelerator.

Reordering States Through Drag-and-Drop

A simplified alternative to using the clipboard to reorder states is to use drag-and-drop.

1. Select the states to be moved.
   - Ctrl + click to select multiple states individually.
   - Shift + click to select a range of states.
2. Press and hold the left mouse button while over one of the selected states. While continuing to press the left mouse button, move the mouse to the location where the states will be moved. If the states are to be moved to the end of the collection, drag the states beyond the last state. If they are to be moved elsewhere in the collection, drag the states over the space between state thumbnails where they will be moved.
3. Release the left mouse button (the same operation can also be performed with a right mouse button drag-and-drop, selecting "Move…" from the drag-and-drop menu).

State Draw Order

State Draw Order refers to the order in which the various visual elements of a Page, Popup Page or Button are drawn on the screen.

- The element at the top of the state draw order overlaps all other elements. The top of the state draw order is like the top layer in a multi-layer drawing.
- The element at the bottom of the state draw order is overlapped by all other elements. The bottom of the state draw order is like the bottom layer in a multi-layer drawing.

By default, the state draw order is:

1. fill
2. bitmap
3. icon
4. text
5. border

You can change the draw order via the options in the *State Draw Order* dialog (see below).

- An example of a button with the default state draw order (FIG. 348):
- An example of a button with the state draw order altered to draw the icon over the text (FIG. 349):

FIG. 348 Example button with default state draw order

FIG. 349 Example button with altered state draw order

Changing the State Draw Order for Selected States

Use the *State Draw Order* dialog to specify the draw order for selected states:

1. Select a button, page or popup page.
2. Click the Browse button (...) in the *Draw Order* State property to access the *State Draw Order* dialog (FIG. 350).

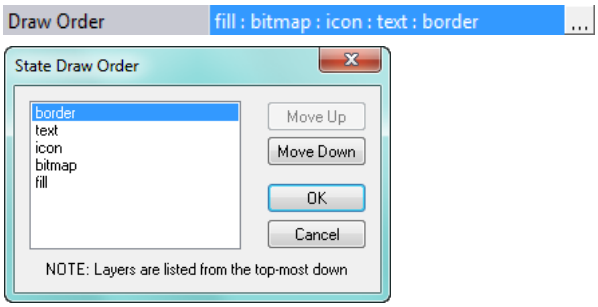


FIG. 350 Draw Order State Property & State Draw Order dialog

3. Select an element in the list, and use the **Move Up** and **Move Down** buttons to move the element up or down in the list.
4. Repeat with the other elements in the list to rearrange the order as desired.
5. Click **OK** to close the dialog.

Note that the new draw order is indicated in the *Draw Order* state property.

Working With Function Codes

Overview

In terms of designing buttons that interact with and control the various devices on the control system, TPD4 uses *Function Codes*. In TPD4, the term Function Codes refers to all three of the code types that can be assigned to buttons:

- **Channel Codes**: Displayed in the upper-left corner of the button, the channel codes indicate the port number and the channel code associated with the button. The channel codes represent communication out of the panel to the master controller.
- **Address Codes**: Displayed in the lower-right corner of the button, address codes in TPD4 are similar to the *Variable Text Codes* in TPDesign3. The address code represents communication from the master controller to the panel, causing the panel to do something (i.e. indicate feedback, display a text string, etc).
- **Level Codes**: Displayed in the lower-left corner of the button, level codes represent bi-directional communication between the panel and the master controller (i.e. the panel can cause a change in a level setting, and a changed level setting generates feedback on the panel).

NOTE

The easiest way to handle function codes is to create and finalize your touch panel pages and buttons (with function codes) before generating the supporting NetLinx code. That way, in case you have to change any aspect of the project (i.e. add/ remove controlled equipment, test strings, graphics, etc), you can update the function code assignments in TPD4, rather than having to re-write your code.

Show/Hide Function Codes & State Overlay

To display function codes, as well as the current display state of buttons in the Design View window, select **View > Display Function & State Overlay** (or the toolbar button, or press **F7**).

The function codes and current display state assigned to each button are displayed in the Design View window, as shown in FIG. 351:

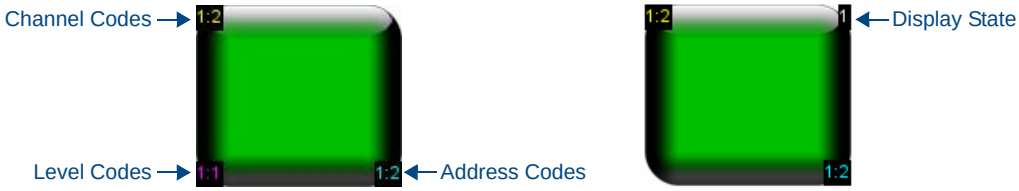


FIG. 351 Button with Display Function & State Overlay enabled

Each function code is a two-part number separated by a colon:

Port Number:Channel/Address/Level Number

NOTE

If Display Function Codes & State Overlay is enabled, they will also be included in printed output.

Function Codes - Limitations

- The maximum number of channel codes per port is **4000**.
- The maximum number of address codes per port is **4000**.
- The maximum number of level codes per port is **600**.
- The maximum number of ports in TPD4 is **100**.

Function Code Map

Click the **Function Maps** tab (at the bottom of the Workspace window) to view the Function Code Map (FIG. 352).

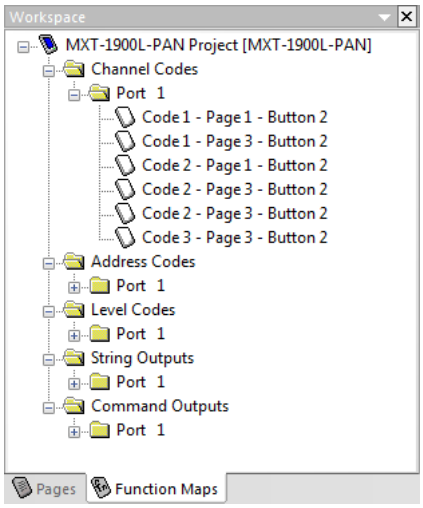


FIG. 352 Workspace Window - Function Maps tab

The Function Code Map is a representation of the Channel codes, Address codes, Level codes, String Outputs and Command Outputs utilized in the panel file, displayed in a hierarchical tree format. This list is sorted by Port, and within Port by Code.

- If codes have been assigned to any of the panel's sensors (light, motion, battery, and/or cradle), they will now appear in the Function Map and can be modified there just like button function codes.
- You can use the Function Code Map to delete codes as well as drag and drop items from one port to another, within the primary folder the selected item belongs to (i.e. Channel Codes, Address Codes, Level Codes). For example, you cannot drag and drop an Address Code (regardless of the port folder that contains it) into any port folder contained in either the Channel or Level folders.

NOTE

Neither String or Command Outputs support any type of drag and drop operations.

- Selecting an item in the tree and then left clicking again will provide an in-place edit of the code value.

NOTE

While you can (in-place) edit the Channel, Address and Level codes via these folders, you cannot edit String or Command Outputs the same way. These can only be edited via the Programming tab of the Properties window.

- A double-click action on the item will open the associated page (or popup page) and place the edit focus on that item.
- Setting the *Address*, *Channel* or *Level* port to the setup port provides a list of predefined actions.
- Select **Panel > Verify Function Codes** to automatically verify the active project's Function Code Map, and fix any problems that are found.

0- setup port

Setting the Address, Channel or Level *Port* to the setup port ("0") provides a list of predefined actions in the corresponding *Code* field (FIG. 353):

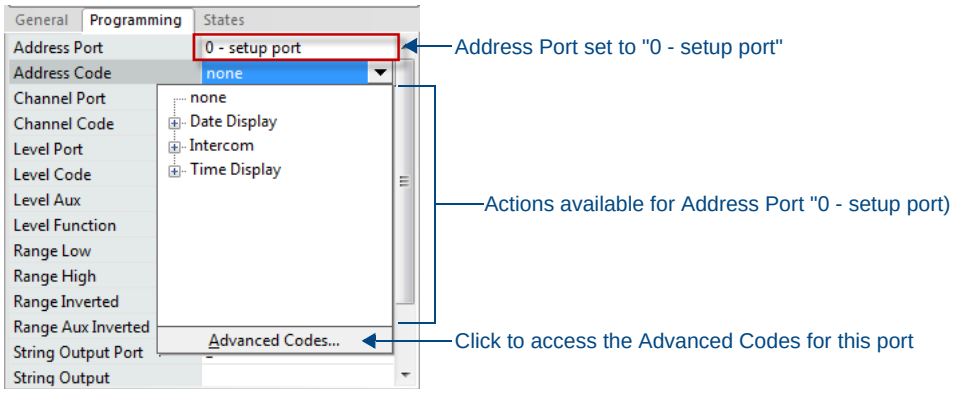


FIG. 353 Address Port set to "0 - setup port"

Some of the actions may be hardware dependent. Therefore, ensure that the codes selected apply to your particular panel type.

In the event that an inappropriate code is selected for a given panel type, that code will be ignored.

Click the **Advanced Codes** option at the bottom of the Code drop-down menu to access a listing of Advanced Codes (FIG. 354):

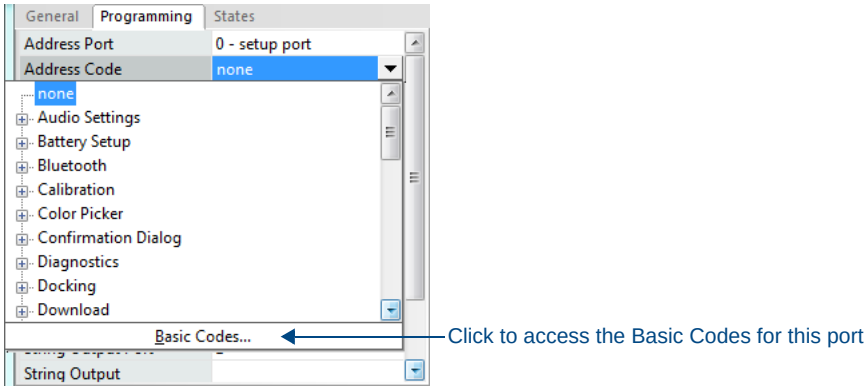


FIG. 354 Address Port set to "0 - setup port" - Advanced Codes

Using Power Assign

One of the big time-eating factors of creating a touch panel file is correctly setting up the channel, address and level function codes for any given button, and other properties that depend on button type. Use *Power Assign* to streamline this process.

- The *Power Assign* feature can operate on a single button, or on a group of selected buttons.
- *Power Assign* works only at the button level, and does not affect pages or popup pages.

One valuable use of this feature is to establish a contiguous range of channel / address codes on a set of buttons. To accomplish this, left-click on the button in the set that should receive the first channel / address code, then by holding down the CTRL key, select each of the remaining buttons in the set in the order in which you want the channel / address codes to be assigned.

By following the instructions below and utilizing the **Begin Assignment At** and **Ensure Contiguous Code Assignment** options, one can assign channel / address codes to every button in the set with significantly fewer mouse clicks and keystrokes than would otherwise be possible.

The Power Assign dialog

Select **Button > Power Assign** (or press **F8**) to open the *Power Assign* dialog, where you can set button-level actions, channel/variable text, and code parameters one or more selected buttons (FIG. 355):

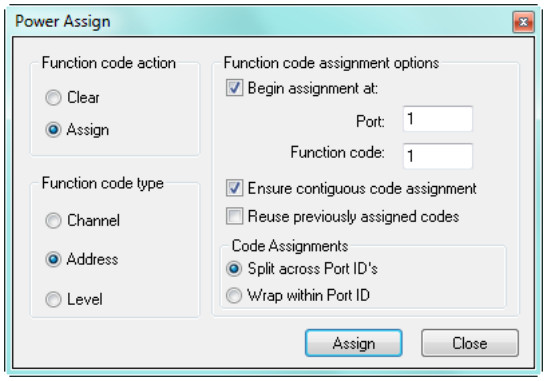


FIG. 355 Power Assign dialog

Power Assign Dialog Options	
Function Code Action	
Clear	Clears the button group's channel or address code, based on the option you select in the What to change area. Choose *Channel* to clear the channel codes or *Address* to clear the address codes in the button group.
Assign	Sets the button group's channel or variable text assignments based on the option you select in the What to change area. Choose *Channel* to set the channel codes or *Address* to set the address codes in the button group.
Function Code Type	
Channel:	Sets the button group's channel codes (if you select the Function Code Action/Assign option).
Address:	Sets the button group's address codes (if you select the Function Code Action/Assign option).
Level:	Sets the button group's level codes (if you select the Function Code Action/Assign option).

Power Assign Dialog Options (Cont.)	
Function Code Assignment Options	
Begin Assignment At:	Sets the button group's starting device and channel codes (if you select the Function Code Action/Assign option).
Port:	Sets the button group's port numbers (if you select the Function Code Action/Assign option).
Function Code:	Sets the button group's function codes (if you select the Function Code Action/Assign option).
Ensure Contiguous Code Assignment:	Sets the button group's device and channel code assignments to be contiguous (i.e. 1, 2, 3, etc).
Reuse Previously Assigned Codes:	Sets the codes, starting at either port 1/channel 1 or what you specify in the *Start At* field without regard to previously utilized codes.
Code Assignments	
Split Across Port IDs:	Tells the program that if the power assignment causes the generated codes to exceed the allowable range, that it should then continue the code generation at channel 1 of the next port. For example, if the set contained two buttons and the first button started at port 1/channel 4000, then the second button would be assigned to port 2/channel 1, since only 4000 channel codes are available per port.
Wrap Within Port ID:	Tells the program that if the power assignment causes the generated codes to exceed the allowable range, that it should then continue the code generation at channel 1 of the current port. For example, if the set contained two buttons and the first button started at port 1/channel 4000, then the second button would be assigned to port 1/channel 1, since only 4000 channel codes are available per port.

Step One - Clear Channels

It is good practice to clear the function codes before any Assign Codes operations. If you don't clear the codes first, and any of the buttons in the group you are assigning already have codes assigned, they will show up as used when Power Assign does its' checks. In some cases, this may be what you want to have happen, but usually you will want to clear them before assigning.

One powerful feature of Power Assign is the ability to clear the various function codes from the buttons:

1. In the Design View window, select the buttons that you want to include in this Power Assign (FIG. 356):

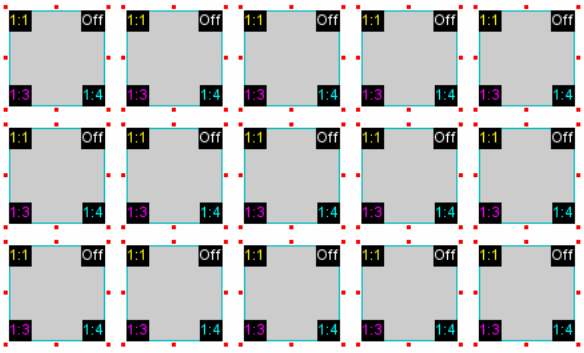


FIG. 356 Group of buttons selected in the Design View window

2. Select **Button > Power Assign** (or press **F8**) to open the *Power Assign* dialog.
3. Under *Function Code Action,* select **Clear** (FIG. 357).

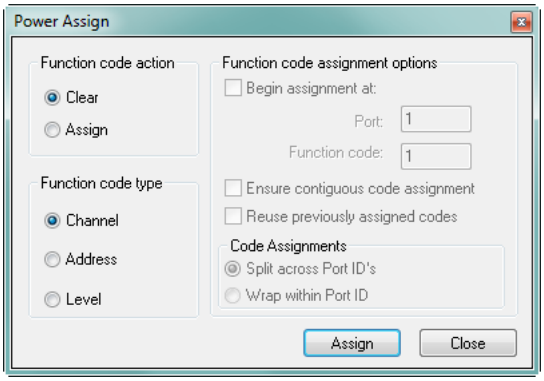


FIG. 357 Power Assign dialog - Function Code Action set to Clear (Channels)

4. Under *Function Code Type*, select **Channel**.
5. Click **Assign**. FIG. 358 shows the same group of buttons, with their Channel Codes cleared:

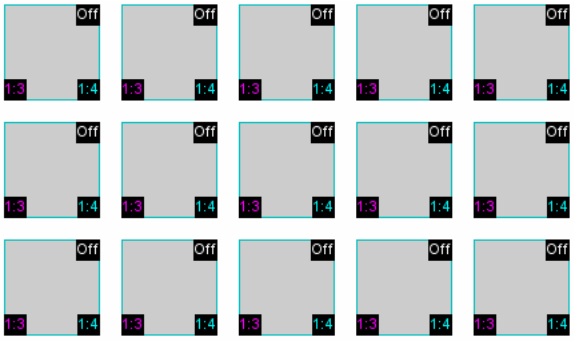


FIG. 358 Group of buttons in the Design View window - Channel Codes cleared

6. Repeat this process for *Address* and *Level* codes.
   - Note that the *Power Assign* dialog is a floating dialog - you can leave it open after clicking Assign to do the next action: Simply select **Address** (under *Function code type*) and **Assign**. Then select **Level** and click **Assign**.
   - FIG. 359 shows the same group of buttons, with their Channel, Address and Level codes cleared:

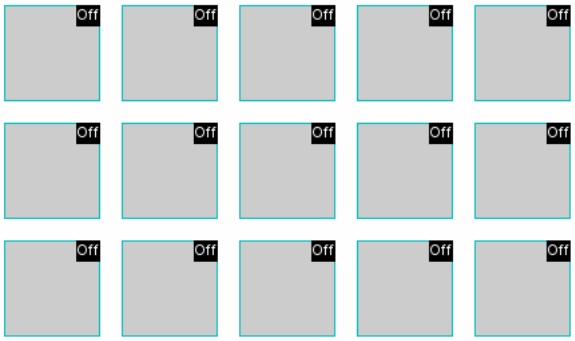


FIG. 359 Group of buttons in the Design View window - Channel, Address and Level Codes cleared

Step Two - Assign Codes

Next assign new function codes:

1. Select one or buttons in the Design View window
2. Under *Function Code Action,* select **Assign**.
3. Under *Function Code Type*, select **Channel**.
4. Select one or more Function Code Assignment options. These options are described in the *Function Code Assignment Options* section below.
5. Click **Assign**.
6. Repeat this process for *Address* and *Level* codes.
   - Since the selection is retained after any operation, if you make a mistake, it's easy to select **Clear** and click the **Assign** button to clear the codes. One can also simply undo the action if desired.
   - Power Assign processes the function code assignments based on the order in the selection. Therefore, if the order is important, make sure to create the selection using CTRL-Select.

Function Code Assignment Options

To use take full advantage of Power Assign, you should understand the following Function Code Assignment options:

Begin Assignment At

Select **Begin Assignment At** (under *Function Code Assignment Options*) to specify the starting value of the Port and Function (Channel, Address, or Level) code (FIG. 360):

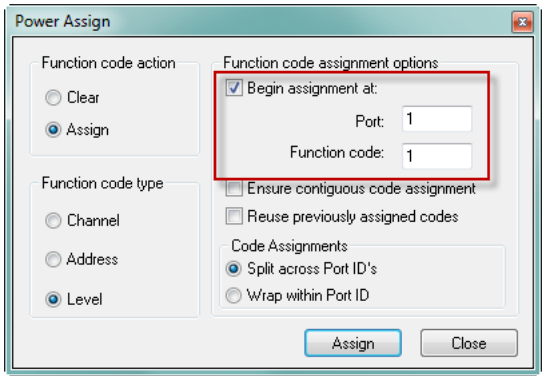


FIG. 360 Power Assign dialog - Begin Assignment At option selected

NOTE

If you don' t check the Begin Assignment At option, the assign operation begins at the first available channel, just like standard Auto Assign.

The *Begin Assignment At function* is particularly useful for setting up things like numeric keypads, where you need the channel codes to begin at a specific value, since you might be using offset math in your code to process the button pushes.

Ensure Contiguous Code Assignment

Select **Ensure Contiguous Code Assignment** (under *Function Code Assignment Options*) to assign all codes in unbroken numerical order (FIG. 361):

This is used when the channel codes have to be in order, with no breaks between them, as in a numeric keypad. In these cases, since the order is important, use CTRL-select to select the buttons in the order you want to assign the channels.

If you don' t care what channels are assigned, uncheck this option, and TPD4 will find the next available free channels, skipping used channels and continuing on until all available channels have been assigned.

The values used will be subject to whether or not you have set the **Begin Assignment At** checkbox.

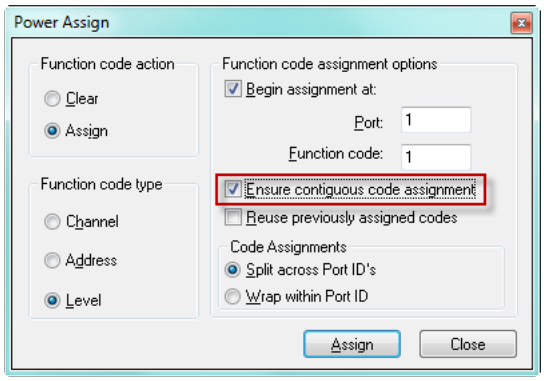


FIG. 361 Power Assign dialog - Ensure Contiguous Code Assignment option selected

Code Assignments - Wrap Within Port ID

Select **Wrap Within Port ID** (under *Code Assignments*) to assign all codes within a single port (FIG. 362):

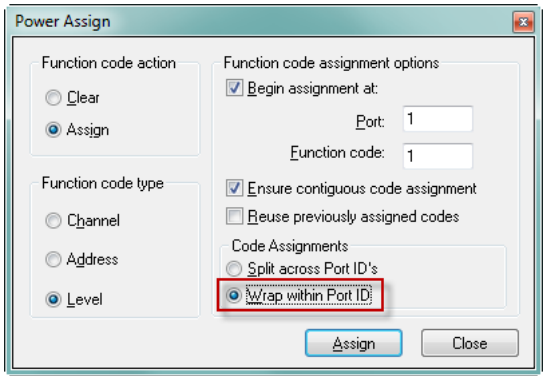


FIG. 362 Power Assign dialog - Wrap Within Port ID option selected

Since touch panels support more than one port, you're not limited to 256 channel and address codes.

However, things like SYSTEM_CALLS are based upon all the channels coming from a single device (port). If the channels are split across ports, the feedback part of the System Call will not work.

Another thing that comes into play with being able to use multiple ports is that you may need to confine certain ranges of channel codes to a single port to take advantage of the DEFINE_MUTUALLY_EXCLUSIVE channel grouping in the code. Since MUTUALLY EXCLUSIVE works on a particular port, one must ensure that the group of buttons is entirely within a single port.

In either of these cases, check the *Wrap Within Port ID* option, which ensures that all channel codes assigned fall within a single port.

Working With Colors and Palettes

Overview

A key feature of TPD4 is it's ability to utilize the full 32-bit RGB color palette, which allows you to specify RGB (Red, Blue and Green) values, plus Hue, Saturation, Brightness and Opacity. The RGB palette offers millions of possible colors that can be applied to fills (pages, popup pages, and buttons), transparencies (popup pages and buttons), and text (pages, popup pages and buttons).

TPD4 also allows you to save or load custom palettes. Every color element that is not assigned either directly via an RGBA selection or the named color table will reference this palette and be affected by any changes made to it. Palettes are saved as part of the panel file.

Additionally, TPD4 supports the importing of either a JASC® formatted palette file, a Microsoft® formatted palette file, or a custom palette file previously saved from within the application.

NOTE

Because the RGB Color palette supports more colors than the Palette Index, you might see some slight variation in some colors if you switch from the RGB Color palette to Palette Index. In most cases, any variation that occurs in the translation is extremely subtle, since TPD4 tries to match the color exactly.

Color assignments are made through the *Colors* dialog. There are several ways to open the Colors dialog (FIG. 363):

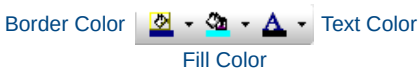


FIG. 363 Color Assignment toolbar buttons

- When setting new button parameters, click on the *Border Color*, *Fill Color* or *Text Color* toolbar icons to open the base palette, then click **More Colors**.
- Click to select an existing page, popup page or button, and click
- **Fill Color** in the States tab of the Properties Control Window.

The *Colors* dialog supports three ways to select colors from the RGB color palette:

1. **RGB Color**: a full-feature RGB palette that allows you specify RGB (plus *Hue*, *Saturation*, *Brightness* and *Opacity*) values numerically, or by dragging the cursor around the palette. The RGB palette offers millions of possible colors (FIG. 364):

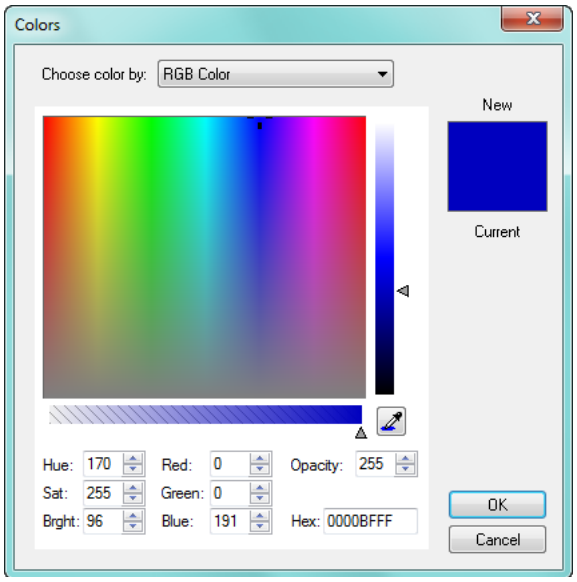


FIG. 364 Colors dialog - RGB Colors

2. **Palette Index**: a default palette that provides the Base 88 colors (which the can be modified if desired). The Palette Index offers a maximum of 255 colors (FIG. 365):

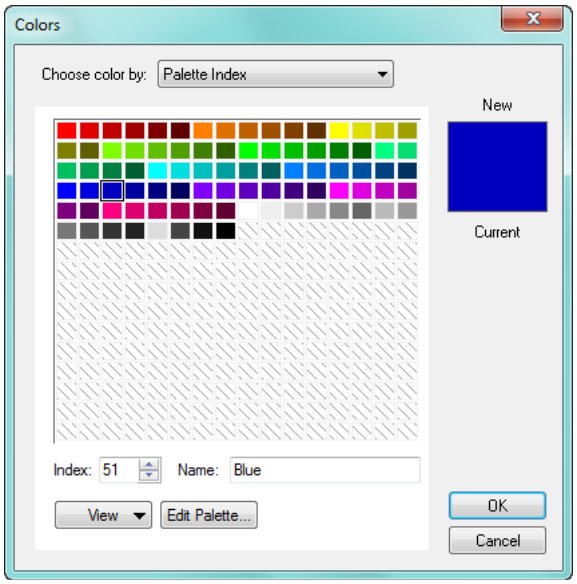


FIG. 365 Colors dialog - Palette Index

NOTE

Because the RGB Color palette supports more colors than the Palette Index, you might see some slight variation in some colors if you switch from the RGB Color palette to Palette Index. In most cases, any variation that occurs in the translation is extremely subtle, since TPD4 tries to match the color exactly.

3. **Color Name**: a named color selection dialog based on the Base 88 color scheme. These Base 88 colors are identical to those provided in previous versions of TPDesign3, and include the transparent color in position 255 (FIG. 366):

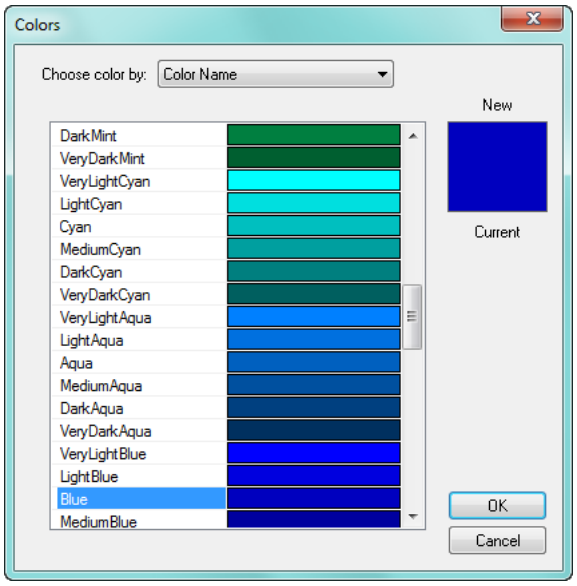


FIG. 366 Colors dialog - Color Name

NOTE

Neither JASC nor Microsoft palette files support transparency in the same manner that TPD4 utilizes transparency, so once imported, custom palettes cannot be reopened in another graphics package.

Working With Palettes

TPD4 supports creating and saving multiple custom color palettes within a project.

Use the options in the Edit Palettes dialog to create and save custom palettes.

Custom Palettes can be saved as *.PAL files, which can then be imported/exported for use in other TPD4 projects.

NOTE

When you copy a button from one project into another project that is using a different palette, the pasted button will use the palette that is currently active in the project that the button is copied into (as opposed to the palette that was used to create the button). Depending on the differences between the palette in the button's source project and the palette in the target project, this can cause color shifting on the button.

Custom palettes can be used to enable the *Color Schemes* feature in the G4 PanelBuilder application. Color Schemes allow you to apply different color schemes to an entire template (in G4 PanelBuilder), without having to edit the buttons directly.

For example, you could create a single template file with four different color palettes that would allow you to use the same template to quickly produce four different variations on the design - one color scheme for each season. Refer to the *Chameleon Images and Custom Palettes* section on page 336 for details.

Working With Multiple Color Palettes

TPDesign4 supports multiple color palettes to allow easy switching between color schemes, and named palette entries. Use the options in the *Edit Palettes* dialog to create custom palettes and save them as *.PAL files that can then be imported/exported for use in other projects.

Creating New Palette Entries

1. Select **Panel > Edit Palettes** (or click the toolbar button) to open the *Edit Palettes* dialog (FIG. 367).

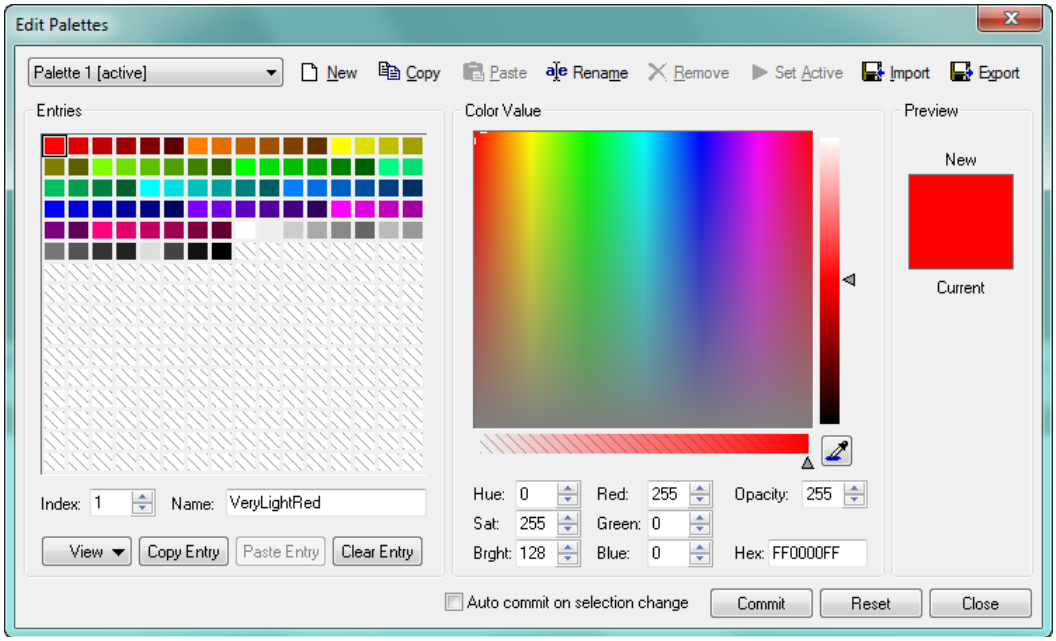


FIG. 367 Edit Palettes dialog

By default, the palette that is currently being used for the active Project is selected. Note that it is tagged as **(active)** in the palette selection drop-down list (in the upper-left corner of this dialog).

- Each color that is listed in the palette is considered to be a *palette entry*, and each palette entry is represented by an *index number* (1-256).
- The *index* numbers correlate to the slot in the palette that this color occupies.

2. Select the palette to which you want to add a new palette entry (color), in the palette selection drop-down list in the upper-left corner of the dialog.

3. Select a palette entry:
   - To add a new palette entry to the palette, select a slot with no color assignment.
   - To edit an existing palette entry, select an existing color.
4. Use the cursor in the *Color Value* chart, in conjunction with the Hue/Sat/Bright, Red/Blue/Green, opacity (and/or Hex value) to specify the color that you want to add to the palette.
5. Enter a description of the new palette entry in the **Name** text field. This is optional, but highly recommended since this is the name that will appear with the color in the palette when the *view* option is set to **details**.
6. Click on the **Commit** button to add the selected color and color name (if applicable) to the selected slot in the palette.

Creating Custom Palettes

1. Select **Panel > Edit Palettes** (or click the toolbar button) to open the *Edit Palettes* dialog. By default, the palette that is currently being used for the active Project is selected. Note that it is tagged as **(active)** in the drop-down list.
2. Click the **New** button to clear the palette index of all entries. By default, the new palette is titled *Unnamed*, as indicated in the palette selection drop-down list in the upper-left corner of this dialog.
3. To add palette entries (colors) to this palette, use the cursor in the Color Value chart, in conjunction with the
4. *Hue/Sat/Bright*, *Red/Blue/Green*, *opacity* (and/or *Hex* value) to specify the color that you want to add to the palette.
5. Enter a description of the new palette entry in the
6. **Name** text field. This is optional, but highly recommended since this is the name that will appear with the color in the palette when the *view* option is set to **details**.
7. Click on the **Commit** button to add the selected color (and color name if applicable) to the selected slot in the palette.
8. Repeat steps 3 - 5 to add as many additional colors to this palette as needed.

Renaming Palettes

1. Select **Panel > Edit Palettes** (or click the toolbar button) to open the *Edit Palettes* dialog. By default, the palette that is currently being used for the active Project is selected. Note that it is tagged as **(active)** in the drop-down list.
2. Select the palette that you want to rename from the palette selection drop-down list, in the upper-left corner of this dialog.
3. Click the **Rename** button to open the Rename dialog.
4. Enter the new name for this palette in the text field and select **OK**.
5. The new name of the palette is indicated in the palette selection drop-down list. Note that the new name overwrites the previous name (removing the previous name from the list).

Changing the Active Palette

To select a different palette to use, select **Panel > Edit Palettes** (or click the toolbar button) to access the *Edit Palettes* dialog, and select from the listing of available palettes in the palette selection drop-down list, in the upper-left corner of the dialog.

Importing Palette (*.PAL) Files

1. Select **Panel > Edit Palettes** to open the *Edit Palettes* dialog.
2. Click the **Import** button to access the *Open* dialog. Use this dialog to locate and select the desired *.PAL file.
3. Click **Open** to import the selected palette file and close the Open dialog.
4. To make the imported palette the active palette, you must select **Set Active** at the top of the dialog.

Exporting Palette (*.PAL) Files

Use this feature to save and distribute custom palettes that can be imported back into TPD4 via the **Import** option:

1. Select **Panel > Edit Palettes** to open the *Edit Palettes* dialog.
2. Click the **Export** button to access the *Save As* dialog. Use this dialog to save the palette to a specified directory, as a *.PAL file.

Copying Palettes

Use the *Copy* and *Paste* buttons at the top of the *Edit Palettes* dialog to copy and paste entire palettes:

1. Select **Panel > Edit Palettes** (or click the toolbar button) to open the *Edit Palettes* dialog.
2. Select the palette that you want to copy from the palette selection drop-down list (in the upper-left corner of the dialog).
3. Click the **Copy** button.
4. Click the **Paste** button to paste the contents of the source palette into the new (target) palette.

Alternatively, you could open an existing palette and paste over the existing palette entries.

Copying Palette Entries

Use the *Copy Entry* and *Paste Entry* buttons at the bottom of the *Edit Palettes* dialog to copy and paste individual palette entries (colors):

1. Select **Panel > Edit Palettes** (or click the toolbar button) to open the *Edit Palettes* dialog.
2. Select the palette that contains the color(s) that you want to copy from the palette selection drop-down list (in the upper-left corner of the dialog).
3. Click to select the palette entry that you want to copy.
4. Click the **Copy Entry** button.
5. Click the **New** button to open a new (empty palette) or select an existing one from the drop-down list.
6. Select the slot that you want to paste the copied palette entry into and click **Paste Entry**.

If you select a slot that already has a palette entry, the copied color will overwrite the original.

Working With Transparent Backgrounds

When you are applying an icon, you can take advantage of transparency support in TPD4. Typically transparency is used in images for the background color, to accommodate layering of images without trying to match colors across layers.

Raster images are always created in the shape of a rectangle. However, by making the background color transparent, you can effectively change the shape of the image. For example, if you have a button using a background image and you apply an icon that doesn't use transparent as the background color, you'll wind up with an unwanted border around the icon image.

Edit the icon's fill color and change the background color to transparent. With a transparent background color, the icon actually retains its original rectangular shape, but will display without the background (FIG. 368):

Button using a background image (no icon applied)

Button with icon that does not not use a transparent background color

Button with icon that uses a transparent background color

FIG. 368 Working With Transparent Backgrounds

Check the documentation for your image-editing program to learn about applying transparency to your images. Generally speaking, you will apply a fill to the areas that you want to appear transparent (in most cases the background), and select *transparent* as the fill color, just like you would for any other color in the palette.

When using images with transparencies in TPD4, there are a few key concepts to understand:

- Of all the image file formats supported by TPD4, only PNGs accommodate transparency as a color.
- For the transparent color to be interpreted correctly by TPD4, the PNG file must be saved with RGB colors.
- Unless you are actually using transparency, JPGs are recommended over PNGs, since they are usually slightly smaller in size.

Using Custom Palettes to Enable Color Schemes in VisualArchitect

TPDesign4 supports creating and saving multiple custom color palettes within a project. Custom palettes can be used to enable the *Color Schemes* feature in the VisualArchitect application.

Color Schemes allow you to apply different color schemes to an entire template (in VisualArchitect), without having to edit the buttons directly. For example, you could create a single template file with four different color palettes that would allow you to use the same template to quickly produce four different variations on the design - one color scheme for each design.

Using custom palettes to create Color Schemes requires the use of both TPDesign4 and VisualArchitect: Custom palettes are created in TPDesign4, and saved as part of the TPD4 project. TPDesign4 is also required to export the project as a VisualArchitect Template (*.VAT). However, the Color Schemes feature is applied via the Project menu in VisualArchitect.

Not all TPD4 projects support the Color Schemes feature in VisualArchitect. In order to utilize Color Schemes in VisualArchitect, the TPD4 project must meet several requirements before being exported as a VisualArchitect template file:

- The project must include at least one custom palette (in addition to the default palette).
- The project must include one preview image for each of the custom palettes that are included. These preview images are used to display the color schemes that are available for this template in VisualArchitect.
- Note that if the exported project does not meet these requirements, the Color Schemes feature in VisualArchitect will be disabled for this template.
- While it is not an enforced requirement, in order for the project to actually make use of multiple palettes in VisualArchitect, the buttons in the project must use the border types that come with TPD4 (as opposed to a custom image that defines the button's look).

When a valid TPD4 project file is exported as a VisualArchitect template, and then opened in the G4 PanelBuilder application, the **Project > Color Schemes** option (in the VisualArchitect application) allows you to apply different color schemes to the template with a single click.

You can also use Chameleon Images in conjunction with custom palettes to further enhance the use of Color schemes in VisualArchitect. See the Chameleon Images and Custom Palettes section on page 336 *for details.*

Using the Microsoft® Paint Utility Program

Select **Tools > Paint** to launch the Microsoft Paint Utility program.

Refer to the *Paint online help* for instructions on using Microsoft® Paint.

Animation Effects

Overview

TPD4 utilizes three main concepts for supporting animation effects in your projects:

- Animation Wizard
- Tweening
- Chameleon Images

Animation Wizard

The *Animation Wizard* is a powerful tool included with TPD4. It guides you through the steps of generating an animation sequence that can be applied to a multi-state button to apply impressive visual effects to your buttons. Multi-state buttons can have up to 256 states, all of which are available to be used as "frames" in an animation.

You can create an animation sequence for a multi-state button manually, by creating a series of states and applying a different bitmap or icon to each state and treating each state as an individual frame. This however, would be a very tedious and time-intensive process. The Animation Wizard automates most of the process and makes the task easy.

NOTE

If you select a General (two-state) button to use with the animation wizard, the wizard will allow you to add the necessary number of states to the button to accommodate the animation sequence (and automatically change the button type to Multi-State General).

To create a simple button animation using the Animation Wizard:

1. Select **Button > Animation Wizard** to start the wizard. This opens the first of six dialogs (Animation Wizard - Select Type (Step 1 of 6). Use the radio buttons in this dialog to specify the type of animation to create (*Bitmap, Icon or Chameleon Image*).

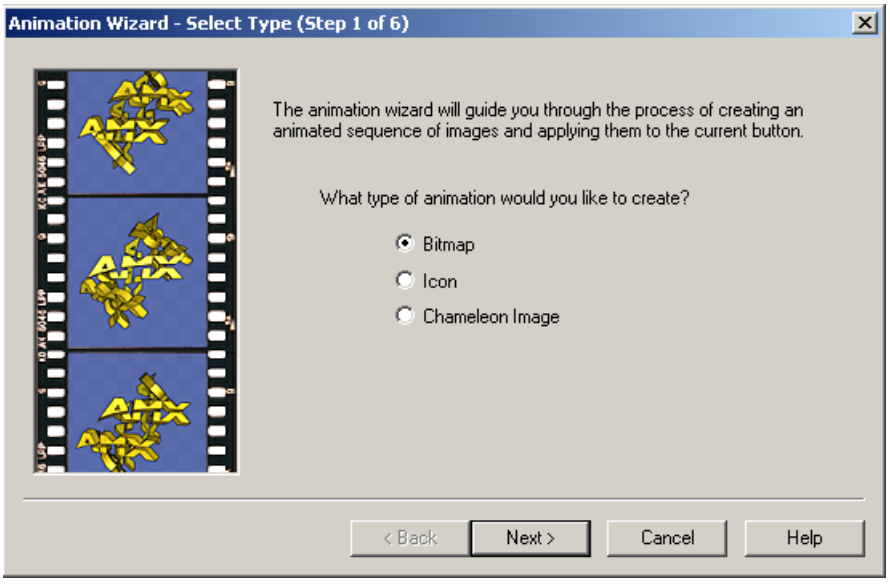

Animation Wizard - Select Type (Step 1 of 6)
The animation wizard will guide you through the process of creating an animated sequence of images and applying them to the current button.
What type of animation would you like to create?
Bitmap
Icon
Chameleon Image
< Back
Next >
Cancel
Help

FIG. 369 Animation Wizard - Select Type (Step 1 of 6)

- Select *Bitmap* to use bitmaps in the animation.
- Select *Icon* to use icons in the animation.
- Select *Chameleon Image* to use (32-bit PNG) chameleon images in the animation.

2. Click **Next** to proceed to the *Animation Wizard - Create Sequence (Step 2 of 6)* dialog. Use this dialog to specify the images to be included in the animation, and set the sequence of the images.
   - The **Sequence** selection is set to "[custom]" by default, and there are no other options in this drop-down list until at least one sequence has been created. Once you import a series of images with identical names except for a post-fixed numeric indicator, they will be available via this drop-down list.
   - To add the images that will comprise the animation sequence, click the **Add** button. This opens the Select Resource dialog, where you can select which images to include in the animation. Ctrl+click to select multiple files, or Shift+click to select the range of files between two selections. Note that the only images that are available to choose from are those that have been imported into the project, through the **File > Import Resources** option, or via the **Import** button on the Resource Manager dialog (see Importing Images and Sounds to Your Project for details).
   - In order for images to appear in the Sequence drop down for selection, the images that you use to create the animation must be named in sequence (i.e. *cool_button_spin01.jpg*, *cool_button_spin02.jpg*, *cool_button_spin03.jpg*, *cool_button_spin04.jpg*, etc...). Also, make sure the numbering convention used for the files is consistent (i.e. don't mix "1" and "01" or "001"). Although you can edit the sequence of the images in the animation manually, it makes things easier if you take naming into consideration before importing the files.
   - You can bring existing animated GIF files into your project via a third-party application (for example JASC® 's *Animation Shop* which comes bundles with *Paint Shop Pro - version 7 or higher*; there are also many freeware applications available). The general concept is that you start with an existing animated GIF image, and save each frame in the animation out as an individual image file (resulting in a series of image files). Once extracted, these files can be imported into your TPD4 project, and the original GIF animation can be simulated. Note that since TPD4 does not support the (proprietary) GIF file type, you will have to save the frames out to a supported file type.

   Click **OK** in the Select Resource dialog to return to the **Animation Wizard - Create Sequence (Step 2 of 6)** dialog. The image files you selected now appear in alpha-numeric order in the preview window of this dialog. If the images were named consecutively, you shouldn't have to modify the sequence at all.
   - Use the **Move Left** and **Move Right** buttons to re-arrange the image sequence (if necessary).
   - Use the **Add** and **Remove** buttons to add/remove selected images from the sequence (if necessary).
3. Click **Next** to proceed to the *Animation Wizard - Size & Position (Step 3 of 6)* dialog. Use this dialog to specify the size and position of the animation relative to the button that will contain it.
   - This dialog tells you two important pieces of information: the size of the animated image, and the size of the button that will contain it. Use the radio buttons in the top-half of the dialog to specify wether to scale the button to fit the animated image, or to simply apply the animation to the button at its current size. If you are applying an animation that is bigger than the containing button, a warning message is displayed along the bottom of the dialog, and the animated image will be clipped (cropped) to fit in the button.
   - Use the options in the lower-half of this dialog to specify the positioning of the animated image relative to the button containing it. Select the desired position option from the drop-down list. If you select *Absolute*, use the X and Y fields to indicate the desired position.

All position (X-Y) values in TPD4 are zero-based (measured in pixels), meaning that the upper-left corner of each button is represented by the X-Y value of 0, 0.

4. Click **Next** to proceed to the *Animation Wizard - Assign Frames (Step 4 of 6)* dialog. Use this dialog to create enough states to accommodate the number of frames in the animation sequence. For example, if you create a multi-state button, and open the Animation Wizard before adding any states, you have only two states on the button. Obviously, the animation sequence will have more than two frames. Lets say that your sequence has ten frames. The options in this dialog allow you to automatically detect the number of frames in the animation sequence, and the number of states available on the button to which the animation is to be applied. So, for a ten-frame animation, you'll have to add at least eight states to the button (one frame per button state).
   - Use the first field to indicate which state to start the animation on (*default = 1, the first state*).

- Use the next field to indicate which of the existing states to duplicate, if more states are required for the animation.
- If button states exist beyond the end of the animation, use the radio buttons to indicate how to handle them (*Leave Alone* or *Remove*).

5. Click **Next** to proceed to the *Animation Wizard - Appearance (Step 5 of 6)* dialog. Use this dialog to specify how treat the **Button Border Style**, and **Button Fill Color** on the resulting button.
   - If creating a bitmap animation, these options default to no border (*Set to "none"*) and transparent fill (*Set to "transparent"*).
   - If creating a icon animation, these options default to leave both border an fill color alone (*Leave alone*).
6. Click **Next** to proceed to the *Animation Wizard - Finish (Step 5 of 6)* dialog. This dialog lists the actions to be taken to generate the button animation, including:
   - The number of states to be added to the button, and which state to duplicate.
   - The position of the animation on the button.
   - The starting state for the animation, the number of frames in the animation, and the animation type (*Bitmap* or *Icon*).
   - A listing of each state and the image file associated with it.
7. Click **Finish** to generate the animation.
   - Note that the animation is displayed in the State Manager window (if it is open).
   - Use the Button Preview window to view the animation (select
   - **View > Button Preview**, and click **Push**).

Remember, many other animation effects can be achieved via the Tweening tools of TPD4.

Tweening

Short for *in-betweening*, "tweening" is the process of altering the display properties of intermediate frames between two images to give the appearance that the first image evolves smoothly into the second image. Tweening is a common concept in all sorts of animation software.

TPD4 supports multi-state buttons, which can have up to 256 states which are used to animate a button push from Off to On and back again to Off. In TPD4, each state of a multi-state button can be thought of as an individual frame. So, if you create a multi-state button with 256 states, you might say that you have 256 frames available for the animation.

When the multi-state button is turned On it will display all the assigned states from first to last within a specified time interval. This is called "Animate Time Up", and is definable in 1/10th second increments. When the button is turned back Off, the states will be displayed in reverse order. This is called "Animate Time Down", also definable in 1/10th second increments. The Animate Time Up and Animate Time Down values are set in the General tab of the Properties window.

Provided you are not creating an image-based animation, the tweening process greatly simplifies the process of generating each state individually by automatically creating a gradual transition across all states based on the state properties of the first and last states.

Beyond simplifying the process of creating motion animations, tweening also generates very smooth color transition effects that would be difficult or impossible to do any other way. When used in combination with TPD4's ability to handle RGB colors (including the opacity setting), it is also possible to use tweening to make buttons fade in and out on the page.

Since transparent borders are not supported in this version of TPD4, to make a button fade completely in/out on a page, you would have to create the button without borders.

To illustrate, here's an example of how to create a simple button animation using just some of the tweening options available in TPD4:

1. Create a new multi-state button. Note that even multi-state buttons initially have only two states, as indicated by the State Manager window (FIG. 370).

FIG. 370 State Manager (2 States indicated)

2. Select **Button > Add States**, and add 10 states, for a total of 12 (FIG. 371).

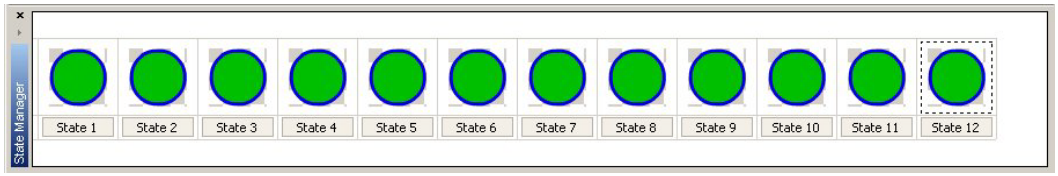


FIG. 371 State Manager (12 States indicated)

3. Change the *Fill* and *Border* colors on the last state in the series (in this case State 12), via the Properties window (States tab). In this example, text was also added to the first and last states in the series - "ON" was applied to the first state in white, "OFF" was applied in black to the last state (FIG. 372).

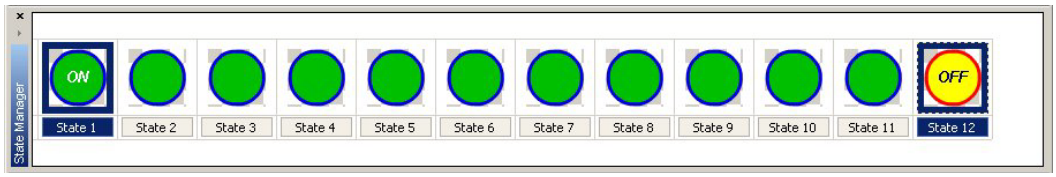


FIG. 372 State Manager (Tweening Fill and Border colors)

NOTE

Ctrl + click to select only the first and last states in the series to select a contiguous range of states to tween across.

4. Right-click on either of the highlighted states to open the State Manager context menu.
5. Select **Tweeners** to open the Tweeners sub-menu, and apply each of the top three tween options (*Border Color*, *Fill Color* and *Text Color*).

NOTE

The Bitmap Position, Icon Position and Text Position tween options only work when the Bitmap, Icon and Text Justification settings are set to Absolute positioning for the two states selected in the tweening operation (via the States tab of the Properties window).

6. The thumbnails in the State Manager change to show the results of the tween options applied. Notice the gradual transition in border and fill colors (FIG. 373).

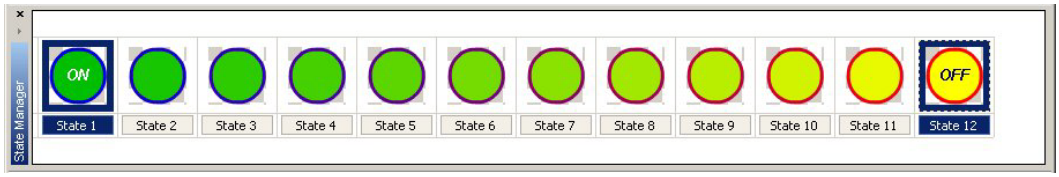


FIG. 373 State Manager (Fill and Border colors tweened)

7. To preview the animation as it appears when the button is pushed, select **View > Button Preview** to open the Button Preview window, and click **Push**.

Creating Color Transition Effects

Use the *Border Color*, *Fill Color* and *Text Color* tweeners to easily apply color transition effects to multi-state buttons. The color tweeners can be used individually, or in combinations to create smooth fades from one color to another when the button is pressed. With 256 states available to use as "frames" in a tweened animation, these effects can be made to be very subtle and smooth. However, most color transition effects don't require that many frames to produce a very smooth fade.

When used in combination with TPD4's ability to handle RGB colors (including the opacity setting), it is also possible to use tweening to make buttons fade in and out on the page. Note that to make buttons fade in/out completely, you would have to create the button without a border assignment, since transparent borders are not supported in this version of TPD4.

When the button is turned On it will display all the assigned states from first to last within a specified time interval. This is called "Animate Time Up", and is definable in 1/10th second increments. When the button is turned back Off, the states will be displayed in reverse order. This is called "Animate Time Down", also definable in 1/10th second increments. The *Animate Time Up* and *Animate Time Down* values are set in the General tab of the Properties window.

To create a color transition effect:

NOTE

The following steps apply to all three button color attributes (Border Color, Fill Color, Text Color and Text Effect Color):

1. Select (or create a new) multi-state button with at least three states. Note that the more states you use, the smoother the transitions will appear (FIG. 374).

FIG. 374 State Manager (4 States indicated)

2. Apply a color (Fill Color, Border Color, Text Color, Text Effect Color or any combination) to the last state that is different from that of the first state (FIG. 375).

FIG. 375 State Manager (Last State selected)

NOTE

To create a fade effect, leave the colors the same for the first and last states, but change the opacity on one of them to zero (via the Colors dialog, set to RGB colors).

- An opacity setting of zero makes the button totally transparent.
- An opacity setting of 255 (max) makes the button totally opaque.

3. Ctrl+click to select two states in the State Manager window that are separated by at least one state (do not select the intermediate states). The color tweener(s) will generate a transition effect that fades the first color into the second (FIG. 376).

FIG. 376 State Manager (All States selected)

NOTE

The most basic type of color transition effect starts at the first state (or frame) and ends at the last. However, the TPD4 tweening tools are not limited to one tween effect per multi-stage button press. Experiment with applying multiple color tweens to the same button, and with different combinations of tweeners.

4. Right-click on one of the highlighted states in the State Manager window, and select **Tweeners** from the context menu to open the Tweeners sub-menu.
5. Select one or more of the color tweeners to apply effects. The results are displayed immediately in the State Manager window (FIG. 377).

FIG. 377 State Manager (Color Transition indicated)

NOTE

*Use the **All Colors** Tweener to tween all colors applied to the button.*

Creating Animated Bitmap Effects

Use the *Icon Position* and *Bitmap Position* tweeners to apply animated bitmap effects to multi-state buttons.

- The *Icon Position* tweener allows you to cause an icon to move around the button area when it is pressed.
- The *Bitmap Position* tweener allows you to cause a bitmap to move around the button area when it is pressed.

Animated bitmap effects can be used alone or in conjunction with the other tweeners to create all sorts of eye-catching visual effects.

To create animated bitmap effects with an icon:

1. Select (or create a new) multi-state button.
2. Add an icon to the button (via the *Icon* field in the Properties window - States tab).
3. Set the **Icon Justification** field to *Absolute*.
4. Move the icon into it's starting position for the animation via the Image/Text Positioning dialog (select *Image/Text Positioning* from the State Manager context menu).
5. Insert at least one state (tweeners require at least three states to work).
6. Duplicate the state that the tweening should begin across all states to be included in the tween.
7. In the last state included in the tween, place the icon in its end position in the animation via the Image/Text Positioning dialog (select *Image/Text Positioning* from the State Manager context menu).
8. Ctrl+click to select just the two states containing the icon start and end positions in the State Manager window. They must be separated by at least one stage, and you should not select the intermediate states).

To create animated bitmap effects with a bitmap image, follow the steps outlined above. The only difference is that you will select and apply a bitmap rather than an icon to the button.

In order to apply motion tweening to an icon, bitmap or text, the justification for the icon, bitmap or text must be set to Absolute.

Creating Animated Text Effects

Use the *Text Position* tweener to apply animated text effects to multi-state buttons. The text position tweener allows you to have the button text move around the button area when it is pressed. Animated text effects can be used alone or in conjunction with the other tweeners to create all sorts of eye-catching visual effects.

To create animated text effects:

1. Select (or create a new) multi-state button.
2. Add text to the button (via the Text field in the Properties window - States tab).
3. Set the **Text Justification** field to *Absolute*.
4. Move the text into it's starting position for the animation via the Image/Text Positioning dialog (select
5. *Image/Text Positioning* from the State Manager context menu).
6. Insert at least one state (tweeners require at least three states to work).
7. Copy the text from the first state to the last state to be tweened, and move it to its end position in the animation via the Image/Text Positioning dialog (select *Image/Text Positioning* from the State Manager context menu).
8. Ctrl+click to select just the two states containing the text start and end positions in the State Manager window. They must be separated by at least one stage, and you should not select the intermediate states). The Text Position tweener will generate a motion effect that moves the text across the button.

In order to apply motion tweening to an icon, bitmap or text, the justification for the icon, bitmap or text must be set to Absolute.

Tweeners sub-menu

Select **Tweeners** from the States Menu or the State Manager context menu to open the Tweeners sub-menu. This menu allows you to select a type of tweener to use in creating animations on multi-state buttons. Note that depending on the elements of the selected buttons, some of these options may not be available. For example, the *Bitmap Position* option is only available if the selected buttons use a bitmap. The options in this menu include:

- **Border Color -** This option tweens the *Border* color (only) between two selected button states.
- **Fill Color -** This option tweens the *Fill* color (only) between two selected button states.
- **Text Color -** This option tweens the *Text* color (only) between two selected button states.
- **Text Effect Color -** This option tweens the *Text Effect Color* (only) between two selected button states.
- **All Colors -** This option tweens the Border, Fill, Text, and Text Effect colors between two selected states all at once.
- **Overall Opacity -** This option tweens the *Overall Opacity* (only) between two selected button states.
- **Bitmap Position -** This option tweens the position of a bitmap applied to two selected button states.
- **Icon Position -** This option tweens the position of an icon applied to two selected button states.
- **Text Position -** This option tweens the position of text applied to two selected button states.
- **All Positions -** This option will tween the Bitmap, Icon, and Text positions applied to two selected button states all at once.
- **Text Size -** This option tweens the size of text applied to two selected button states.

NOTE

*The position-oriented tweener options only work when the selected elements are set to use **absolute positioning**.*

Chameleon Images

TPD4 supports a button state property called **Chameleon Image**. A chameleon image is a **PNG** image file that, when applied to a button/state, uses the Fill and Border colors assigned to the button/state to determine the colors in the image. In other words, it is an image that can have its colors changed on the panel itself (at run-time).

Color Channels for Chameleon Images

Chameleon images utilize the 4 color channels that are utilized by PNG (32-bit) images (*Red*, *Blue*, *Green* and *Alpha*) to determine the colors used in the image as follows:

- The *Alpha* channel of the Chameleon image defines the overall shape mask for the state.
- The *Red* channel defines the area that will be filled with the state's Fill Color.
- The *Green* channel defines the area that will be filled with the state's Border Color.
- The *Blue* channel is not used.

As a result, if the Fill and/or Border colors are changed, then the colors used in the chameleon image will change accordingly (FIG. 378).

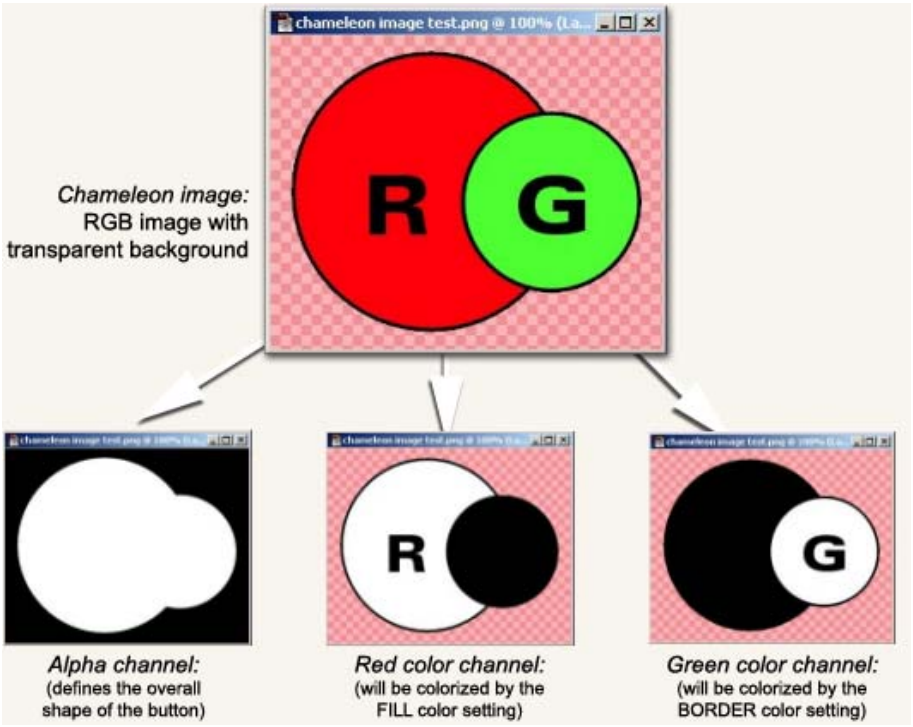


FIG. 378 Color Channels for Chameleon Images

One possible benefit of using chameleon images is that, when used in conjunction with custom palettes, they enable the ability to create multiple color schemes that can be applied to a single template in the G4 PanelBuilder application.

NOTE

When creating an image to be used as a Chameleon image in TPD4, set the image properties to RGB Color and 32 Bits/Channel.

For an example of a chameleon image, refer to the "Chameleon Demo" TPD4 file attached to Tech Note **TN733**. This file can be viewed in G4 PanelPreview or on an actual G4 panel. To access AMX Tech Notes, you must be logged into www.amx.com as a dealer.

Requirements for Chameleon Images

Chameleon images can be applied to buttons to create animated highlighting, glow and drop-shadow effects. When used with multi-state buttons, chameleon images can also take advantage of TPD4's tweening tools to easily create color transition effects. Furthermore, chameleon images may also use a companion bitmap which, when placed on top (via the *Draw Order* state property), can add highlighting and shadow effects to convincingly create an illusion of depth.

The basic requirements that allow an image file to be recognized as a chameleon image in TPD4 are:

- It is a PNG image file
- It uses RGB color (32 bits/channel)
- It has an alpha channel defined

In order for a chameleon image to be applied to buttons or popup pages, the Border Name state property must be set to **none**. When the border name is set to none, then the Chameleon Image property becomes available.

The Chameleon Image state property is available for all button types except *Text Input*, *Computer Control* and *TakeNote* buttons.

Note that chameleon images are not necessarily different from any other PNG image file. Ideally, the image to be used is one that either was created or was selected specifically with the concept of colorizable regions that could be changed to suit different design needs. That is, while virtually any PNG file could be applied as a chameleon image, some images make more sense and would give better results than others.

The characteristics that define any image as a *chameleon image* are:

1. It meets the technical requirements for a chameleon image (see above).
2. It has been applied to a button as the Chameleon Image (via the Chameleon Image state property).

Working With Chameleon Images

Here's an example of creating a simple chameleon image, for the purpose of illustrating the basic concepts used:

1. Use an image editing program to create an image to use as the chameleon image:
   - Use the alpha channel to define the overall desired shape of the button (see Working with Transparent Backgrounds for more information).
   - When creating an image to be used as a chameleon image, keep in mind that the Red and Green color channels will be replaced by the colors specified as the *Fill* and *Border* colors in TPD4 for each state of the button. The Blue color channel is not used for chameleon buttons.
2. Export the image as a PNG file. The exported file must be a 32-bit RGB Color (8 Bits/Channel) file in order to be interpreted correctly by TPD4 as a chameleon image.
3. Import the image file into TPD4 (via the **Import** button on the Images tab of the Resource Manager dialog).
4. In a Design View window, create or select a button to which you wish to apply the chameleon image. Keep in mind that the Chameleon Image state property is not available for Text Input, Computer Control or TakeNote button types.
5. In the States tab of the Properties window, set the button's *Border Name* to **None**. Note that at this point, the *Chameleon Image* property becomes available (directly beneath *Border Name*).
6. In the **Chameleon Image** property, click the browse button (...) to access the Resource Manager dialog. Select the chameleon image (in the Image tab) and click **OK** to apply it to the selected button.

Now that the image has been applied as a chameleon image, note that any portion of the image that exists on the *Red* color channel now matches the color specified in the **Fill Color** state property.

Similarly, any portion of the image that exists on the *Green* color channel now matches the color specified in the **Border Color** state property.

A few examples of color changes resulting from changing the Fill and Border colors for the button/state with the chameleon image (FIG. 379):

FIG. 379 Chameleon Images - Fill and Border colors

Since chameleon buttons rely on the Border and Fill color settings, you can use the *Fill Color* and *Border Color* Tweening tools to quickly create color transition effects for each of the color channels (FIG. 380):

FIG. 380 Chameleon Images - Fill and Border colors tweened

In fact, the Chameleon images can by used in conjunction with any of the other Tweening tools, depending on what elements (Bitmaps, Icons, Text) make up your button.

Chameleon Images, Custom Palettes and VisualArchitect

Chameleon images can be used in conjunction with custom palettes to create VisualArchitect template files that, when opened in the VisualArchitect application, are capable of switching from one color scheme to another without having to edit the buttons directly.

For example, you could create a single template file with four different color palettes that would allow you to use the same template to quickly produce four different variations on the design - one color scheme for each design. The Color Schemes feature in VisualArchitect allow you to apply different "color skins" to a single template.

Refer to the *Chameleon Images and Custom Palettes* section on page 336 for details.

Working With Templates

Overview

TPDesign4 allows you to import VisualArchitect (VA) template files (*.VAT) as well as TPD4 template files (*.TPT).

- *.VAT template files are created and exported using the *VisualArchitect* application.
- *.TPT template files are created and saved as templates in TPD4.

Importing Template (*.VAT or *.TPT) Files

TPD4 allows you to import VisualArchitect (VA) template files (*.VAT) as well as TPD4 template files (*.TPT).

- *.VAT template files are created and exported using the VisualArchitect application.
- *.TPT template files are created and saved as templates in TPD4.

To import a touch panel template file into TPD4:

1. Select **File > Import Touch Panel Template** to open the *Import Touch Panel Template* dialog.
2. Locate and select a Touch Panel Template file (*.VAT or *.TPT) to import into TPD4 for editing (FIG. 381).

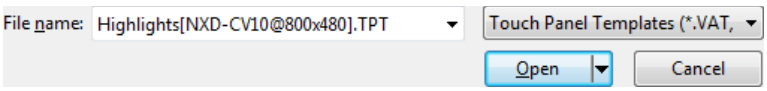


FIG. 381 Import Touch Panel Template dialog (detail)

When a VAT or TPT template file is imported, a Status dialog indicates the progress as the various component files are loaded. Depending on the size of the template, this could take several minutes.

Once the template has been loaded, it is opened in TPD4 as a project file. The buttons and pages can be edited, copied and pasted just like any other TPD4 project.

Exporting Your Project as a VisualArchitect Template

Select **File > Export As VisualArchitect Template** to open the *Export As VisualArchitect Template* dialog. This dialog indicates errors and warnings relating to the VisualArchitect Template (*.VAT) file that will be created from this project (FIG. 382).

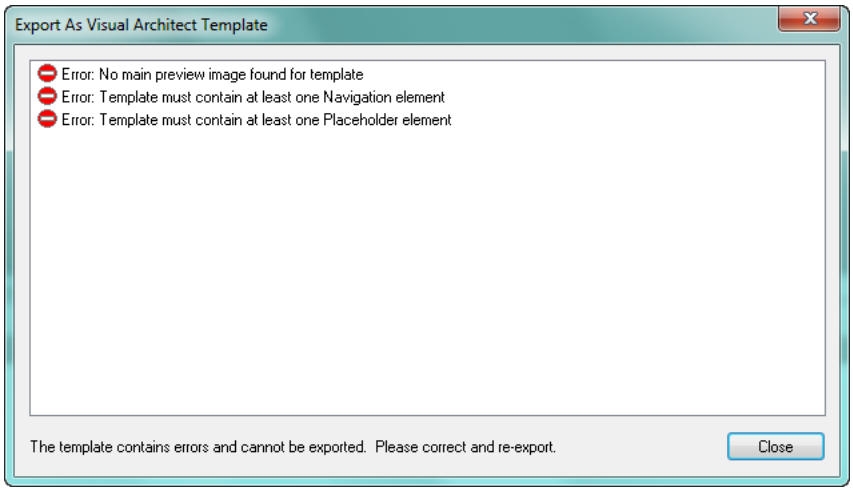

Export As Visual Architect Template
Error: No main preview image found for template
Error: Template must contain at least one Navigation element
Error: Template must contain at least one Placeholder element
The template contains errors and cannot be exported. Please correct and re-export.
Close

FIG. 382 Export As VisualArchitect Template dialog

A VisualArchitect template is a TPD4 file complete with pages, popups and buttons, named in a manner that VisualArchitect will understand the relationship between all of the elements. Then, based on the established elements, VisualArchitect customizes the TPD4 file based on the navigation flow you designed.

TPD4 does not support the creation of VisualArchitect templates for R-4 remote devices (since R-4 remotes must implement navigation elements in the form of pages in order for the Back and Up/Down buttons on the remote to function correctly). On the other hand, VisualArchitect requires that navigation elements in a template be implemented as pop-ups. The menu option to export a project as a VisualArchitect template is disabled for R-4 projects.

Any number of template files (*.TPT) can be created to constitute a template family, it is suggested you create one for each resolution totaling 6. Refer to the following sections for listings of Touch Panels and Supported Resolutions:

- *Supported Screen Resolutions* section on page 4
- *Screen Resolutions By Panel Type* section on page 6

In some cases, several different panel types share the same resolution. You only need one template per resolution, but you should consider instances such as the MVP-8400, where the Pixels Per Inch is higher than the CV12 and the MVP-7500's limited color depth. Both examples are situations where you might consider making specific templates for those panel types.

You should spend some time deciding what you want the panel to do.

- What navigation model are you going to use?
- You know you're going to have the required template elements but are some of your menus so complex they will require sub-menus?
- What devices and features will the template include? Consider using some optional template elements.

Careful consideration will reveal the type of navigation you will need.

Things to remember:

- You must have a minimum of one *Navigation* element. See the *Creating Navigation Elements* section on page 332 for details.
- You must have a minimum of one *Placeholder* element. See the *Creating Placeholder Elements* section on page 333 for details.
- You must have a Main Preview Image. See the *Creating Preview Images* section on page 335 for details.
- You cannot create a "drill-down" style of navigation with VisualArchitect
- Your navigation menus will always be on top of your Devices. Make sure they do not conflict with each other.

3. Start with the Device and Navigation elements first and the Placeholder elements last. The key for creating your own elements is in the naming conventions.

   VisualArchitect looks for navigations with the name, **[nav#navName]pageName**.

4. Create the preview images for the elements.
5. After you have completed the template design, select **File > Export as VisualArchitect Template.** A .VAT file is created and a list of errors and warnings are displayed at this time, if applicable.
6. Repeat the design for other resolutions.

Things to remember:

- You can use TPD4's *Save As Other Panel Type* when appropriate or as a starting point.
- Leave the "Job Name" in the Panel Properties the same for all related TPD4 files, this is the basis of a template family.
- Not all resolutions have to be done at once. If necessary you can build the ones you currently need and address the other resolutions as they present themselves.

VA Templates - Navigations as Pages

TPD4 modifies the export of panel projects as VisualArchitect templates to allow navigation elements to be implemented as pages instead of popup pages for panel projects of device class "remote".

Also, TPD4 limits navigation elements of device class "panel" to pop-up pages only.

VA Templates - Logical Page Scroll Bar Elements

- Logical pages contain two button elements that are used to implement a scrollbar.
- These two buttons are named **[scrollbartop]** and **[scrollbarbottom]**.

VA Templates - Logical Page Info Element

Logical pages must contain a **[logicalinfobtn]** button element that will be used to identify the first page of a logical page group.

- This button should contain the list of individual logical pages belonging to the logical page collection, starting with itself.
- A logical page that is itself the only page of a logical page group must still contain a **[logicalinfobtn]** button element containing at least one page flip (to itself).
- There should be one and only one **[logicalinfobtn]** button element for each logical page group.

*A **[logicalinfobtn]** button element must be present in addition to a **[info]** button element that might be required to indicate that the logical page belongs to a device, feature, or placeholder implementation.*

VA Templates - Logical Page Up and Down Elements

Logical pages contain two button elements that will be used to implement page flips within the logical page group.

- These two buttons are named [**logicalupbtn]** and **[logicaldownbtn]**.
- Each logical page must contain one of each of these elements.

VA Templates - List Box Page Up and Down Elements

List box pages contain two button elements that will be used to implement list box single up/down operations.

- These two buttons are named **[listboxupbtn]** and **[listboxdownbtn]**.
- Each list box page must contain one of each of these elements.

Creating VisualArchitect Templates

You can use TPD4 to create custom VisualArchitect template (*.VAT) files.

A template is essentially just a TPD4 project (*.TP4) file with pages, popup pages and buttons named in a specific way that allows VisualArchitect to recognize the elements in the project, and understand the relationships between these elements.

Once a TP4 project file is exported as a VisualArchitect Template (*.VAT) file, it can be used as a starting point for panel design in the VisualArchitect application.

The basics of this operation are simple: once you have created or opened a TP4 file, select **File > Export As VisualArchitect Template**. Assuming that the project adheres to the various rules required by VisualArchitect for a valid template file, the file is exported with the TPT file extension.

There are certain basic requirements that must be met by the TP4 file before it can be exported as a VisualArchitect Template file:

- The project must contain at least one Navigation Element. A Navigation element consists of at least one popup (may contain multiple Popups), and represents the place where you make most navigation selections (i.e. a main menu page). See the *Creating Navigation Elements* section on page 332 for details.
- The project must contain at least one Placeholder Element. A Placeholder element is a blank or empty device/feature element that allows you to include items in the project that are not specifically included in the template. See the *Creating Placeholder Elements* section on page 333 for details.
- The project must contain at least one main Preview image. A Preview image is the image that is used for thumbnail representation of the template within the VisualArchitect application. See the

Creating Preview Images section on page 335 for details.

NOTE

Projects that utilize custom palettes must also contain one preview image for each color palette that will be available for selection in VisualArchitect (via the Color Schemes option). See the Chameleon Images and Custom Palettes section on page 336 *for details.*

Required Template Elements

When designing a template it is important to remember the rules that govern elements and their relation with the templates. The chart below demonstrates these rules (FIG. 383):

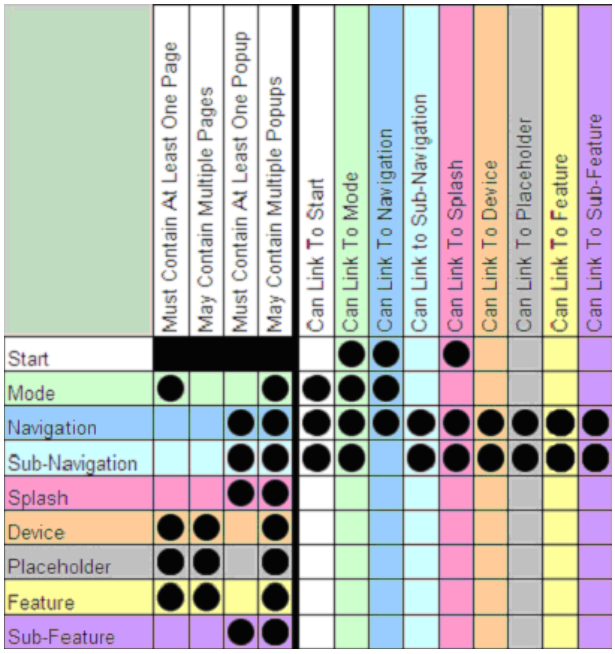


FIG. 383 VisualArchitect Templates - Required Template Elements

The template must have at least one of each of the following elements:

VisualArchitect Templates - Required Template Elements	
Navigation Elements	
This is the main menu where most of your navigation selections are made. • Consists of at least one popup but can contain multiple Popups. • Cannot contain any pages • Only one can be displayed at a time.	
[nav#navName] pageName	
• **navName**	• The name of the Navigation as it will appear within VisualArchitect.
• **pageName**	• The base page name that will be used in the generated TP4 project.
Only one of the pages or Popups in A Navigation element can contain an **Info** button. The Info button contains the page flip information for displaying the Navigation element and can contain an optional icon image.	
[info]buttonName	
• **buttonName**	This is unused and the button is deleted in the generated TP4 project.
The Popups in the Navigation element must contain at lest one **item** button that will be filled with navigation information. Item buttons are ordered within the Navigation element in order of left to right then top to bottom.	

VisualArchitect Templates - Required Template Elements (Cont.)
Navigation Elements (Cont.)

[item]buttonName	
• **buttonName**	This is the button name used in the generated TP4 project.
Popups in a Navigation element can contain one or more **Title** buttons. The text will be replaced with the name given to the Navigation in the generated TP4 project.	
[title]buttonName	
• **buttonName**	This is the button name used in the generated TP4 project.
Placeholder Elements	
This is a blank device element that allows you to represent unique items in the diagram area. • Is one page and may have optional Popups. • Only one Placeholder element can be displayed at a time.	
[placeholder#placeholderName]pageName	
• **placeholderName**	The name of the Placeholder element as it appears in VisualArchitect.
• **pageName**	The base page name used in the generated TP4 project.
Only one page or popup within a Placeholder element can contain an **Info** button. The Info button contains the page flip information for displaying the Placeholder element and can also contain an optional icon image.	
[info]buttonName	
• **buttonName**	This is unused and the button is deleted in the generated TP4 project.
The pages and pops in a Placeholder element can contain one or more **Title** buttons. The text is replaced with the name given to the Placeholder element in the generated TP4 project.	
[title]buttonName	
• **buttonName**	The button name will be used in the generated TP4 project.

Optional Template Elements

There are required elements when developing templates but VisualArchitect also supports a series of optional elements that will make your templates more robust.

There are rules that govern all template elements (see FIG. 383 on page 328). Your templates can have any of the following:

VisualArchitect Templates - Optional Template Elements	
Mode Elements	
This element is generally used for designating "modes" your system will work in, i.e., "Video Conference Mode" or "Presentation Mode." Additionally, Mode elements can be associated with rooms. • Consists of a single page and can contain multiple Popups. • Only one Mode element can be displayed at a time.	
[mode#modeName]pageName	
• **modeName**	The name of the Mode as it will appear in VisualArchitect.
• **pageName**	The base page name used in the generated TP4 project.
Only one page in a Mode element can contain an **Info** button. The Info button contains the page flip information for displaying the Mode element and can also contain an optional icon image.	
[info]buttonName	
This text is used to populate the mouseover element description in the toolbox.	
• **buttonName**	Unused; the button is deleted in the generated TP4 project.
The page in the Mode element must contain at least one **Item** button that contains the navigation information. Item buttons are ordered within the Mode element by left-to-right then top-to-bottom.	

VisualArchitect Templates - Optional Template Elements (Cont.)
Mode Elements (Cont.)
[item]buttonName

• **buttonName**	The button name used in the generated TP4 project.
Popups in a Mode element can contain one or more Title buttons, whose text is replaced with the name given to the Mode in the generated TP4 project.	
[title]buttonName	
• **buttonName**	The button name used in the generated TP4 project.
Sub-Navigation Elements	
This element is a submenu and can occur on screen with Navigation elements. • Consists of at least one popup and can contain multiple Popups. • Cannot contain pages.	
[subnav#navName]pageName	
• **navName**	The name of the Sub-Navigation element as it appears in VisualArchitect.
• **pageName**	The base page name that is used in the generated TP4 project.
Only one of the Popups in a Sub-Navigation element can contain an **Info** button, which contains the page flip information for displaying the Sub-Navigation element and can also contain an optional icon image.	
[info]buttonName	
This text is used to populate the mouseover element description in the toolbox.	
• **buttonName**	Unused; the button is deleted in the generated TP4 project.
Popups in the Sub-Navigation element must contain at least one **Item** button that will contain navigation information. Item buttons are ordered in the Navigation element left-to-right then top-to-bottom.	
[item]buttonName	
• **buttonName**	The button name used in the generated TP4 project.
The Popups in a Sub-Navigation element can contain one or more **Title** buttons. The text within the Title buttons are replaced with the name given to the Sub-Navigation in the generated TP4 project.	
[title]buttonName	
• **buttonName**	The button name used in the generated TP4 project.
Splash Elements	
This element is a popup that can contain an image, i.e., corporate logo. • Consists of at least one popup and can contain multiple Popups. • Cannot contain pages.	
[splash#splashName]pageName	
• **splashName**	The name of the Splash element as it appears in VisualArchitect.
• **pageName**	The base page name that is used in the generated TP4 project.
Only one of the popups in a Splash element can contain an **Info** button, which contains the page flip information for displaying the Splash element and can also contain an optional icon image.	
[info]buttonName	
This text is used to populate the mouseover element description in the toolbox.	
• **buttonName**	Unused; this button is deleted in the generated TP4 project.
Popups in a Splash element can contain one or more **Title** buttons. The text within the buttons is replaced with the name given to the Splash element in the generated TP4 project.	
[title]buttonName	
• **buttonName**	The button name used in the generated TP4 project.

VisualArchitect Templates - Required Template Elements (Cont.)
Device Elements

This element is the actual device used. For reference, consult AMX templates where we list the most commonly used devices. • Consists of one page and can contain multiple Popups. • Only one Device element can be displayed at a time.
[device#deviceName]pageName
• **deviceName** — The name of the Device as it appears in VisualArchitect.
• **pageName** — The base page name used in the generated TP4 project.
Only one page or popup in a Device element can contain an **Info** button which contains the page flip information for displaying the Device element and can also contain an optional icon image.
[info]buttonName
This text is used to populate the mouseover element description in the toolbox.
• **buttonName** — Unused; the button is deleted in the generated TP4 project.
Pages and popups in a Device element can contain one or more **Title** buttons. The text within the buttons is replaced with the name given to the Device element in the generated TP4 project.
[title]buttonName
• **buttonName** — The button name used in the generated TP4 project.
Feature Elements
This element resembles the Device element. However, there can only be one Feature element in a panel design, i.e., the "Clean Panel" feature. • Consists of one page and can contain multiple popups. • Only one Feature element can be displayed at a time.
[feature#featureName]pageName
• **featureName** — The name of the feature as it appears in VisualArchitect.
• **pageName** — The base page name that is used in the generated TP4 project.
Only one page or popup in a Feature element can contain an **Info** button, which contains the page flip information for displaying the Feature element and can also contain an optional icon image.
[info]buttonName
This text is used to populate the mouseover element description in the toolbox.
• **buttonName** — Unused; the button is deleted in the generated TP4 project.
The pages and popups in the Feature element can contain one or more **Title** buttons, whose text is replaced with the name given to the Feature in the generated TP4 project.
[title]buttonName
• **buttonName** — The button name that is used in the generated TP4 project.
Sub-Feature Elements
This element represents the "universal" features that appear on many pages, i.e., "volume." • Consists of at least one popup and can contain multiple popups. • Cannot contain pages.
[subFeature#subFeatureName]pageName
• **subFeatureName** — The name of the Sub-Feature element as it appears in VisualArchitect.
• **pageName** — The base page name that is used in the generated TP4 project.
Only one of the pages or popups in a Sub-Feature element can contain an **Info** button, which contains the page flip information for displaying the Sub-Feature element and can also contain an optional icon image.

VisualArchitect Templates - Required Template Elements (Cont.)
Sub-Feature Elements (Cont.)

[info]buttonName	
This text is used to populate the mouseover element description in the toolbox.	
• **buttonName**	Unused; the button is deleted in the generated TP4 project.
Popups in a Sub-Feature element can contain one or more **Title** buttons, whose text is replaced with the name given to the Sub-Feature element in the generated TP4 project.	
[title]buttonName	
• **buttonName**	The button name that is used in the generated TP4 project.

Rules for Navigating a Template

In addition to the template requirements and required elements, there are rules for navigating the templates and template wide conventions that must be followed. When navigating to a Device, Feature or Placeholder element from a Navigation element:

- Hide all Popups on the page for that element.
- Perform the standard page flip to the page for that element.
- Show any Popups for the element.
- Show any Popups for the linked Sub-Feature, when applicable.
- Show the Navigation element that is linked to the element.

Any Sub-Navigation elements that may have been currently displayed will be hidden.

When navigating to a Device, Feature or Placeholder element from a Sub-Navigation element:

- Hide all Popups on the page for that element.
- Perform the standard page flip to the page for that element.
- Show any Popups for the element.
- Show any Popups for the linked Sub-Feature, when applicable.
- Show the Navigation element that is linked to the Sub-Navigation element or chain.
- For Sub-Navigations the user must set "Hide On Action" to No, then show the Sub-Navigation element that is linked to the element. Otherwise, the Sub-Navigation is not shown.

Info Buttons

Info buttons are optional and only have to be included within an element if the order the popup pages is shown is important, if not all popup pages should be initially shown, or if an icon is used on the corresponding Navigation or Sub-Navigation button.

If the Info button is omitted, popup pages are shown in alphabetical order.

Template Wide Conventions

- **Text Replacement** - The string "**[text]**" is required on the button wherever text is to be replaced in the output file. The string "[text]" allows you to prepend/ postpend text with characters. If the text on a button to be replaced does not contain '[text]" then it is unchanged.
- **Panel Title** - A template can contain as many buttons named "**[panelTitle]**" as necessary, they are replaced with the "Job Name" of the panel.
- **Preview Images** - A template must contain a main preview image and can also contain a preview image for each element. The main preview image should be named '**[preview].JPG**" (or .PNG). The element previews should follow the same naming conventions as their page prefixes, i.e., "[device#DVD].JPG." There can only be one preview image per element.

Creating Navigation Elements

In order for a TP4 file to be successfully exported as a VisualArchitect Template file, the TP4 project file must contain at least one Navigation Element.

A Navigation element consists of at least one popup (may contain multiple Popups), and represents the place where you make most navigation selections (i.e. a main menu page).

To create a basic Navigation element, create a new Standard Popup Page (**Panel > Add Popup Page**), and name it according to the naming convention required by VisualArchitect for Navigation elements:

[nav#navName] pageName

- **navName** - The name of the Navigation as it will appear in VisualArchitect
- **pageName** - The base page name that will be used in the generated TP4 project.

The following example illustrates the implementation of a Navigation popup, as seen in the "graphiclySound-Orange" template (available from AMX). Note that the template includes several variations on the same Navigation theme, offering different numbers of buttons.

The example shown in FIG. 384 is for the Navigation popup named "**[nav#3 Selections]Navigation 3**", which as the name implies, contains three buttons:

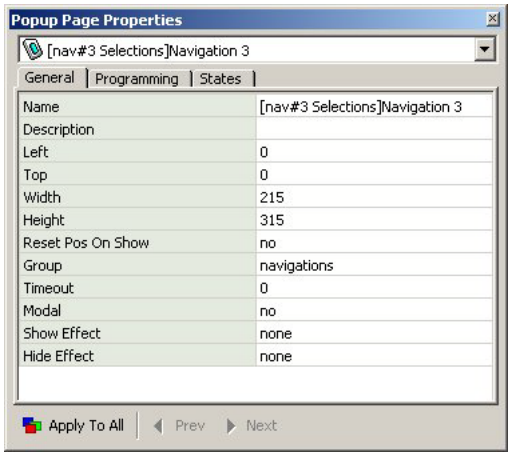


FIG. 384 Properties window - Navigation popup - "[nav#3 Selections]Navigation 3"

FIG. 385 shows example Navigation Popups in the Workspace Window - these represent the variations on the Navigation theme for different numbers of buttons:

FIG. 385 Workspace window - Example Navigation Popups

FIG. 386 shows the "**[nav#3 Selections]Navigation 3**" popup as it appears in the Workspace:

Creating Placeholder Elements

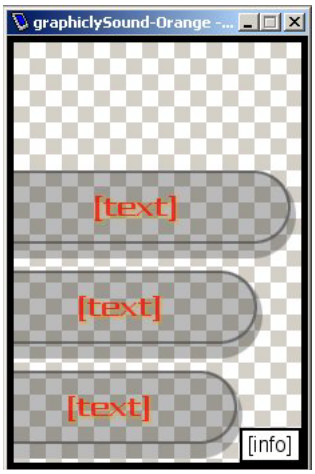


FIG. 386 [nav#3 Selections]Navigation 3" popup

In order for a TP4 file to be successfully exported as a VisualArchitect Template file, the TP4 project file must contain at least one Placeholder Element.

- A Placeholder element is basically a blank device/feature element that allows you add items to the project in VisualArchitect that are not included in the template.
- Placeholder elements consist of one page, and may contain multiple Popups. Only one Placeholder element can be displayed at a time

To create a basic Placeholder element, create a new Page (**Panel > Add Page**), and name it according to the naming convention required by VisualArchitect for Placeholder elements:

[placeholder#placeholderName] pageName

- **placeholderName** - The name of the Placeholder element as it will appear in VisualArchitect.
- **pageName** - The base page name that will be used in the generated TP4 project.

FIG. 387 provides an example implementation of a Placeholder element, as seen in the " graphiclySound-Orange" template (available from AMX):

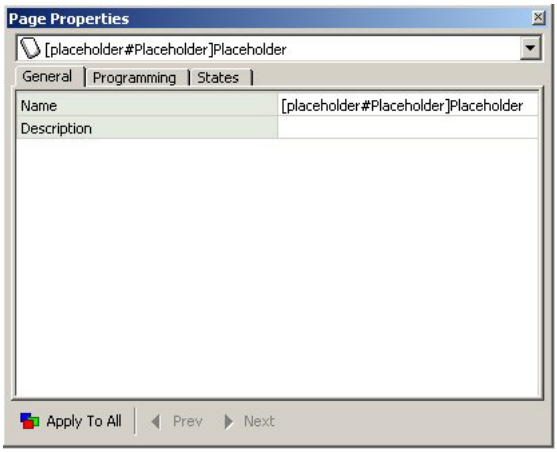


FIG. 387 Example (General) properties for a Placeholder page

FIG. 388 shows an example Placeholder page in the Workspace Window:

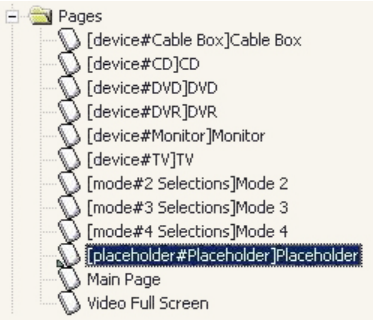


FIG. 388 Example Placeholder page in the Workspace Window

FIG. 389 shows the "**[placeholder#Placeholder]Placeholder**" page as it appears in the Design View:

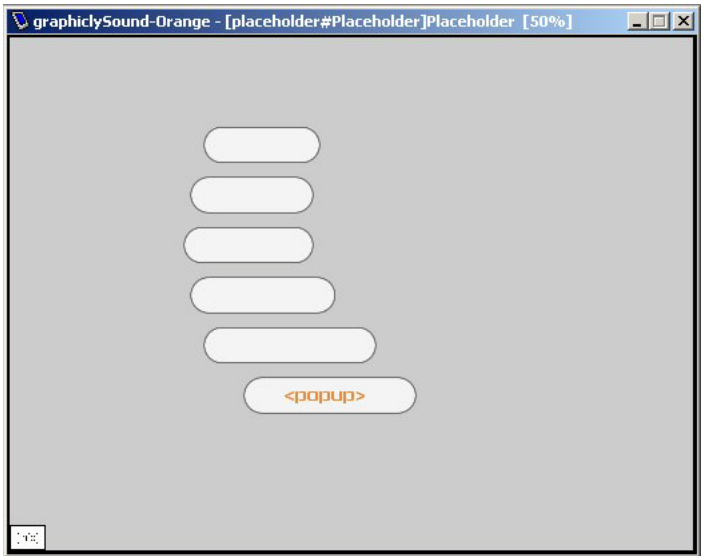


FIG. 389 [placeholder#Placeholder]Placeholder" page

Creating Preview Images

In order for a TP4 file to be successfully exported as a VisualArchitect Template file, the TP4 project file must contain at least one Main Preview Image. However, you can create multiple preview images to represent various elements in the project.

Preview Images are used in VisualArchitect for both the thumbnail images displayed in the Template Manager, as well as the icons in the toolbox.

- Preview Images cannot be used within the panel design itself.
- They must be either JPG or PNG files.

NOTE

If you have created multiple color palettes as part of your TP4 project, and intend to use them to enable the Color Schemes feature in VisualArchitect you must create a separate preview image for each custom palette that you want to be available for application (via the Project > Color Schemes option in VisualArchitect). See the FIG. for details.

To create preview images for your VisualArchitect template:

1. Open a page in a Design View window.
2. Select **Page > Create Template Preview Image** to open the *Create Template Preview Image* dialog. The preview image will be created using the page that currently has edit focus (FIG. 390):
3. Click on **Element Type** to access the drop-down menu (FIG. 391):

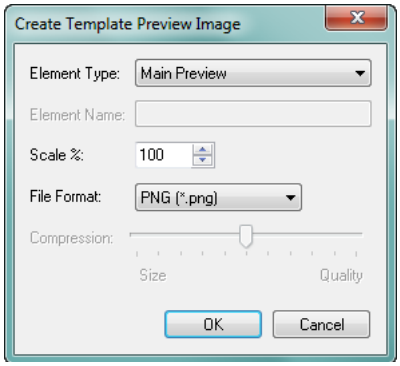


FIG. 390 Create Template Preview Image dialog

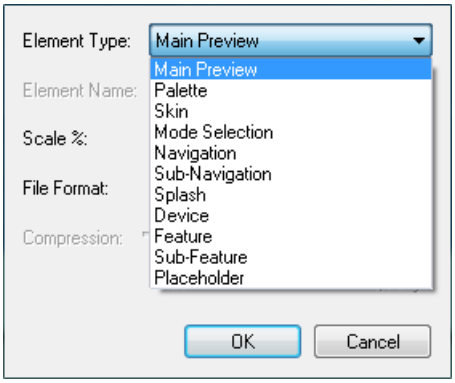


FIG. 391 Create Template Preview Image dialog - Element Type drop-down menu

This menu lists all of the types of project elements that are recognized by VisualArchitect. Pick the one that best describes the type of element you are creating a preview image for.

4. Select **Main Preview**.
   - If you have selected any element other than the *Main Preview* element, then you can enter an alternative name for it in the *Element Name* text field.
   - For all element types other than the *Main Preview* element, the name represents the element name for which the preview is being created. For example, if you have created a DVD Device element, the preview image for this would need to be created as Device element type, and DVD as the name.
   - Default values for these fields are pulled from the name of the page being displayed. For example, if the DVD page mentioned above is named "[device#VCR]Main", then the dialog will be re-populated with "Device" as the element type and "VCR" as the name.
5. Use the up and down arrows next to the *Scale %* field to scale the image, if desired. For example, in order to minimize the file size of the template, you may decide to reduce the zoom on your preview image(s) to 25%.
6. In the *File Format* drop-down, select either JPG or PNG as the file format for the image file.

   If you select JPG, you can specify the compression setting using the *Compression* slider bar.

   The *Size* side of the bar optimizes the file size of the image file (typically at the expense of image quality). Conversely, the *Quality* side of the bar optimizes the file for image quality, which usually results in a larger file size.
7. Click **OK** to create the preview image.

Once the preview image has been generated, it appears in the Resource Manager (*Images* tab). If you created a Main Preview image, it will be named **[preview].JPG** or **[preview] .PNG**. Otherwise, it will be named according to the name specified above.

Select the image and click the **Export** button to export the image to another directory, if desired.

Chameleon Images and Custom Palettes

Chameleon images can be used in conjunction with custom palettes to create VisualArchitect template files that, when opened in the VisualArchitect application, are capable of switching from one color scheme to another without having to edit the buttons directly.

For example, you could create a single template file with four different color palettes that would allow you to use the same template to quickly produce four different variations on the design - one color scheme for each design. The Color Schemes feature in VisualArchitect allow you to apply different "color skins" to a single template.

Since the Fill and Border colors are in turn associated with a particular color palette (which is saved as part of the TPD4 project), the colors used to render the chameleon image will change if and when a different color palette is applied to the template in the VisualArchitect application.

Chameleon images utilize the 4 color channels that comprise 32-bit PNG images to define separate colorizable regions.

Using chameleon images coupled with custom palettes to create Color Schemes requires the use of both TPD4 and VisualArchitect. Chameleon images are imported and applied to buttons (or popup pages) in TPD4. Custom palettes are created in TPD4, and saved as part of the TPD4 project. TPD4 is also required to export the project as a VisualArchitect Template (*.TPT). However, the primary benefits of these features are realized in the VisualArchitect application (via the **Project > Color Schemes** feature).

Not all TPD4 projects support the Color Schemes feature in VisualArchitect. In order to utilize Chameleon Images and Color Schemes in VisualArchitect, the TPD4 project must meet several requirements before being exported as a VisualArchitect template file:

- The project must utilize at least one chameleon image (meaning that a chameleon image has been applied to at least one button in the project). There are also several requirements for images to allow them to be recognized as chameleon images by TPD4.
- The project must include at least one custom palette (in addition to the default palette).
- The project must include one preview image for each of the custom palettes that are included. These preview images are used to display the color options that are available for this template in VisualArchitect.

Note that if the exported project does not meet these requirements, the Color Schemes feature in VisualArchitect will be disabled for this template.

When a valid TPD4 project file is exported as a VisualArchitect template, and then opened in the VisualArchitect application, the **Touch Panel > Color Schemes** option (in the VisualArchitect application) allows you to apply different color schemes to the template with a single click.

See Also:

- For instructions on creating new palettes in TPD4 (and related topics), refer to the *Working With Palettes* section on page 311
- For instructions on creating chameleon images, refer to the *Chameleon Images* section on page 322.
- For instructions on exporting TPD4 projects as VisualArchitect Templates, refer to the *Creating VisualArchitect Templates* section on page 327.
- For instructions on using the *Color Schemes* feature in VisualArchitect to apply different color schemes to a panel builder project, refer to the VisualArchitect online help.

Working With the System Page Template

The System Page Template is a set of pages, popup pages and buttons that are pre-defined with functions that allow you to view/edit various panel and system parameters. When you open the System Page Template, TPD4 automatically selects the template that matches the panel and resolution specified for the active project.

Select **File > Open System Page Template** to open the system page template. You will see the System Page Template open in the Workspace Navigator as a separate project folder, containing a set of system pages and popup pages.

The System Page template is a resource that you can use to copy/paste entire System Pages into your project, or copy/paste selected elements from a System Page into a page in your project. For example, you may want to include the entire RGB Setup page in your project. Once you copy the System Page into your project, it is treated like any other page in your project. You can edit or modify the page and contained buttons, just like you would for any other page in the Project.

Alternatively, you may decide that rather than pasting an entire system page into your project, you only want to use some of the features on a System Page. In this case, you can copy/paste just the buttons you want out of a System Page, and paste them into any page in your project.

The System Page Template Pages are all intentionally locked. The pages and the buttons they contain are not editable until they are copied out of the System Page Template folder, and pasted into a Project. Note that the System Page Templates all have names that begin with two underscores (i.e. "__ RGBsetup"). When these pages are pasted into a Project, the name is automatically changed to a single underscore (i.e. "_RGB setup"). This is to protect the original System Page Template pages from being edited. TPD4 will not allow you to create and save a page with the two underscore prefix.

Again, once the System Page Template is copied into a Project, and the name is (automatically) changed to use a single-underscore prefix, it is fully editable, just like any other page in the Project.

Note that if you click on a button on a System Page, the Address and Channel Port/Code assignments work differently than the buttons you create. System Page buttons always use these settings:

- **Address Port:** System Page buttons which require communication from the master controller to the panel, are always set to the reserved setup port (*0 - setup port*) by default.
- **Address Code:** System Page buttons are each assigned a descriptive name as the Address Code for easy identification.
- **Channel Port:** Since System Page buttons require communication out of the panel to the master controller, the Channel Port is always set to the reserved setup port (*0 - setup port*) by default.
- **Channel Code:** System Page buttons are each assigned a descriptive name as the Channel Code for easy identification.

The pages that make up the template cannot be modified directly. You can open the System Page Template (via the File menu) and copy entire pages or particular elements from a page, and them paste them into your Project, and once these pages or buttons exist within your Project they can be modified as needed. However, TPD4 treats the System File Template as a password-protected file to avoid accidentally modifying the template pages directly.

*Keep in mind that if the System Page Template was opened as part of the Workspace, the **Reload last workspace** option (in the Application tab of the Preferences dialog) will cause the application to attempt to open the (protected) System Page Template as part of the last opened workspace. In this case you will be presented with the Enter Access Password dialog. Since there is not a password to unlock the file, the only option is to open the System Page Template as a **Read-Only** file.*

Copying/Pasting Entire System Pages into a Project

You can add System Pages to your project by copying and pasting. System Pages and the buttons they contain will remain fully functional when they are copied into your project, since they always retain their function codes. Once the System Page is pasted into your project, you can edit function codes (and all other page and button parameters), if necessary.

To copy an entire System Page out of the System Page Template folder and paste it into a project:

Select **File > System Page Template** to open the System Page Template folder as a separate project folder in the Workspace Navigator window (Pages tab). The pages and popup pages included in the System Page Template are displayed in the Pages tab. Note that each System Template page has a descriptive name that begins with two underscores (i.e. "__RGB setup"). The double-underscore prefix indicates that the System Pages are intentionally locked. To avoid potential conflicts with the System Page Template, TPD4 will not allow you to save any Page using the double-underscore prefix.

1. Select the System Page (or pages) that you want to copy (in the **Pages** tab of the Workspace Navigator).
2. Select **Edit > Copy** (or use the Copy toolbar button.

You cannot cut a System Page out of the System Page Template.

3. Select the target project and select **Edit > Paste** (or use the Paste toolbar button. Note that once the System Page is pasted into the project, the System Page name automatically changes from a double- to a single-underscore prefix (i.e. "_ RGBsetup"). This indicates that the page will be treated like a "normal" project page from this point on. Double-click the copied System Page to open it in a Design View window, and edit the page and contained buttons like you would any other page in the project.

Copying/Pasting System Page Elements into a Project page

In some cases, you may have a need for a particular element or set of elements in one of the System Page Templates in your project. In addition to copying/pasting entire System Page Template pages into your project, TPD4 allows you to copy/paste specific items from a System Page into an existing page in your project.

For example, while you may not necessarily want to include the entire RGBsetup System Page as a page in your project, you may want to use just the Red, Green and Blue Level bargraphs into a page. In this case, you would simply select and copy that set of bargraph buttons from the RGBsetup System Page and paste them right into an existing page in your project.

System Page buttons will remain fully functional when they are copied into your project, since they always retain their function codes. Once the System Page button(s) are pasted into your project, you can edit the associated function codes (and all other button parameters), if necessary.

The pages in the System Page Template, and the buttons they contain are locked for editing. However, once the copied buttons are pasted into a page in your project, they can be modified just like any other button in the project.

Working with System Page Keyboards and Keypads

One of the most helpful features of the System Page Template is the set of keyboard and keypad System Popup Pages it contains. You can use these keyboards and keypads in your Project without having to build the keys or assign the function codes. Simply copy/paste these popup pages into your Project, and they will be fully functional, allowing text/numeric entries on the panel.

Like the other System Pages in the System Page Template, these popup pages and their contained buttons are locked to editing, until they are pasted into a Project. Once you bring the keyboard/keypad popup pages into your Project, the popup pages and all of their buttons can be edited just like any other popup pages and buttons in your Project.

The System Popup Pages include:

System Popup Pages	
keyboard:	This is a full 63-key keyboard, including Caps Lock, Shift, and International functionality. This is generally used as the primary standard keyboard, for text/numeral entries made on the panel.
keyboardPrivate:	This is a more secure version of the keyboard popup page, where only asterisks are displayed when you type.
keypad:	This is standard 10-key numeric keypad (also includes Backspace, Clear, Abort and Done buttons).
keypadExtend:	Similar to the keypad popup page, but with several additional symbols (-, /, ., :, ').
keypadPrivate:	This is a more secure version of the keypad popup page, where only asterisks are displayed when you type.
keypadTele:	Similar to the keypadExtend popup page, but includes asterisk and pound symbols additional symbols, for use with telephone connections.
Warning Message:	This is the Battery Base warning message.

Use the keyboard and keypad System Popup Pages anytime you need to add text/numeric entry functions to your Project.

There are two ways to add a keyboard or keypad to your Project:

1. **Copy and Paste the entire Keyboard or Keypad Popup Page into an existing project:** Select the appropriate System Template Popup Page in the Workspace Navigator (Pages tab), select Edit > Copy, then select the target Project in the Workspace Navigator and select Edit > Paste. The pasted popup page is automatically pasted to the Popup Pages folder for the target Project.
2. **Copy and Paste only selected elements from a Keyboard or Keypad Popup Page into an existing project:** Open a Keyboard or Keypad Popup Page, and copy only the buttons/keys that you plan to use into an existing page in a Project.

Either way, you won't have to do any additional work to make the keyboard/keypad work on the panel. However, remember that once pasted into your Project, these popup pages and buttons are fully editable.

System Page Template Reference

The System Page Template is a set of pages, popup pages and buttons that are pre-defined with functions that allow you to view/edit various panel and system parameters. When you open the System Page Template, TPD4 automatically selects the template that matches the panel and resolution specified for the active project.

Select **File > Open System Page Template** to open the system page template. You will see the System Page Template open in the Workspace Navigator as a separate project folder, containing the following pages.

System Page Template Reference	
Battery:	The Battery Base page allows you to configure various battery and power related options.
Calibrate:	The elements on this page allow you to reset the vertical and horizontal touch points on the LCD.
Calibrate Test:	The elements on this page allow you to confirm that the calibration was done properly.
Panel:	Use the elements in this page to store information specific to the target panel for this Project.

System Page Template Reference (Cont.)	
Progress:	This page contains a Progress Bar, used to indicate the progress of file transfer operations.
Project:	This is the Project Information page. Use the elements in this page to store information specific to your Project (*File Name*, *Version*, *Revision*, *Dealer ID*, *Job Name*, etc).
Protected:	This is the Protected Setup page, which contains various setup options that are not usually exposed to the end-user (*Device Number*, *Touch Input Select*, *Baud Rate*, etc).
Protected ID:	This is the Protected ID page, containing options for various system identification information (*IP Settings*, *Master Connection*, *Panel Information*, etc).
Protected Password:	This page contains options to allow you change any passwords associated with this Project, including one protected password (which only displays asterisks when the password is being entered for additional security).
Protected Secondary ID:	This page contains options to allow you to apply password protection to a secondary (wireless) connection.
Protected Sensors:	This page contains options to allow you to configure light and motion sensors on the panel.
Resolution:	This page allows you to match the outgoing screen resolution on an NXP-TPI/4 to the connected touch panel.
Setup:	The Setup page allows you to set several basic setup options (*Panel Timeout*, *Bus Blink*, *Panel Volume* and *Default Panel Sounds* - single or double-beep). This page also contains buttons that have page flips to other related System Pages (*Project Information*, *Panel Information*, *Time Adjustment*, *Video/RGB Adjustment*, *Protected Setup*).
Time:	Use the Time page to set the system clock, and to specify how time and date values will be displayed on the panel.
RGB Full Screen:	This page contains options to allow you to adjust various aspects of the RGB signal (*Red*, *Green* and *Blue levels*, *Horizontal* and *Vertical Size/Position* and *Tracking*). This page also contains a clock adjust button for setting the system clock.
RGB Setup:	This page contains all of the items in the RGB Full Screen System Page, plus buttons to indicate video source slot assignments (which relate to video sources coming from the NXP-TPI/4), and several other buttons to allow a return to the *Default* RGB values, *Undo changes*, *Save Settings*, *Full Screen Edit*, *Version* and *Status* text-area buttons.
Video Setup:	The Video Setup page contains options for setting/adjusting the video sources coming from the NXP-TPI/4 (*Brightness*, *Contrast*, *Saturation* and *Hue*), plus buttons for returning to default settings, undo changes, save changes and other text-area buttons relating to video sources (*Version*, *Status*, *Input* and *Format*).
Volume:	The options in this page allow you to configure the master volume settings for the panel.

The System Page Template also includes several popup pages (see the System Popup Pages table on page 340).

To use these pages in your project, copy/paste the system page (or just those elements that you want to use in your project) into your Project, then enter the text for each button in the States tab of the Properties window.

File Transfer Operations

Overview

In TPDesign4, all file transfer operations are routed through the NetLinx Master to which the target/source touch panels are connected (either via TCP/IP or Serial connection). While all file transfer operations to touch panels are managed by the Master, the files themselves are routed to the panels, where they will reside (touch panel files never reside on the Master).

There are three types of file transfer operations in TPD4 (accessible via the *Transfer* menu):

- **Send To Panel**: Sends the currently open project (*.TP4) file to a specified Master.
- **Send File To Panel**: Sends a selected project file to a specified Master, without opening the file in TPD4.
- **Receive From Panel**: Receives a project file from a Master.

Defining and Saving Connection Configurations

Connection information is maintained separate from the transfer itself, so it does not need to be established/dropped each time a transfer is performed.

- Use the *Connection Settings* dialog (accessed via the **New** button in the *Connect* dialog - see below) to define and save one or more connection settings (FIG. 392).

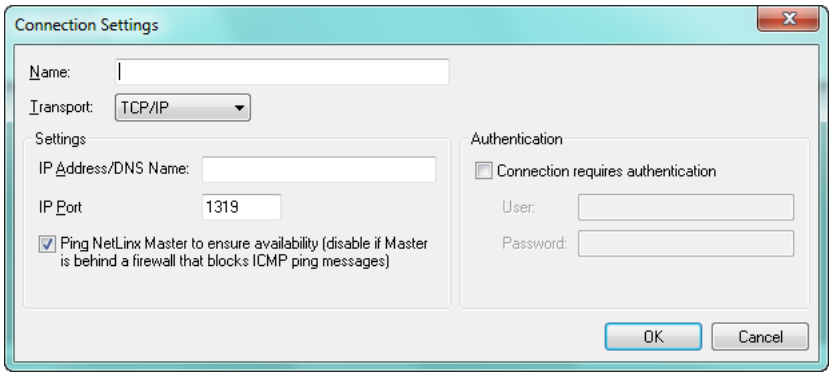


FIG. 392 Connection Settings dialog

- Use the *Connect* dialog (**Transfer > Connect**) to select a pre-defined connection setting (FIG. 393).

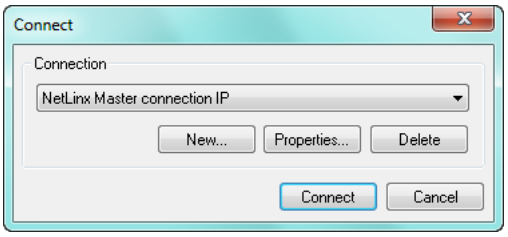


FIG. 393 Connect dialog

Anytime you establish a new communication connection configuration (via the **New** button in the *Connect* dialog), the program requires you to enter a name (as well as the *User Name* and *Password* for secured NetLinx Masters).

The configuration you specify under that name can then be accessed via the **Connection** drop-down list in the *Connect* dialog.

- *To recall a saved communication configuration*, select **Transfer > Connect** to open the Connect dialog, and select the desired configuration from the *Connection* drop-down list.
- *To delete a saved configuration*, select a configuration (in the Connect dialog) and click the **Delete** command button.

Configuring a New TCP/IP Connection

1. Select **Transfer > Connect** (or click the toolbar button) to open the *Connect* dialog.
2. Click **New** to open the *Connection Settings* dialog.
3. In the **Name** field, enter a unique name for this connection configuration.
4. Select **TCP/IP** from the *Transport* drop-down list (FIG. 394).

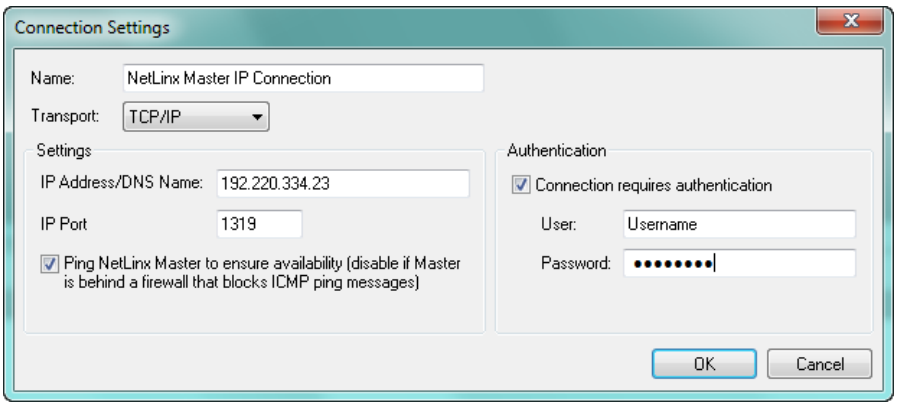


FIG. 394 Connection Settings dialog - TCP/IP Connection example

5. Enter the IP Address of the target NetLinx Master in the **IP Address/DNS Name** field.
   The IP Port should always be set to **1319** (default). Do not change this number.
6. If the target NetLinx Master has authentication enabled, click the **Connection requires authentication** checkbox to enable the *User* and *Password* text fields. Enter the User Name/Password combination to save them as part of this configuration.

NOTE

Refer to the NetLinx Studio online help for details on enabling authentication on NetLinx Masters.

7. Click **OK** to save these settings and return to the *Connect* dialog.

Once this configuration has been saved, it can be selected from the *Connection* dialog (press **Connect** to establish the connection). See *Connecting To a NetLinx Master via TCP/IP* for details.

Configuring a New Serial Connection

1. Select **Transfer > Connect** (or click the toolbar button) to open the *Connect* dialog.
2. Click **New** to open the *Connection Settings* dialog.
3. In the **Name** field, enter a unique name for this connection configuration.
4. Select **Serial** from the *Transport* drop-down list (FIG. 395).

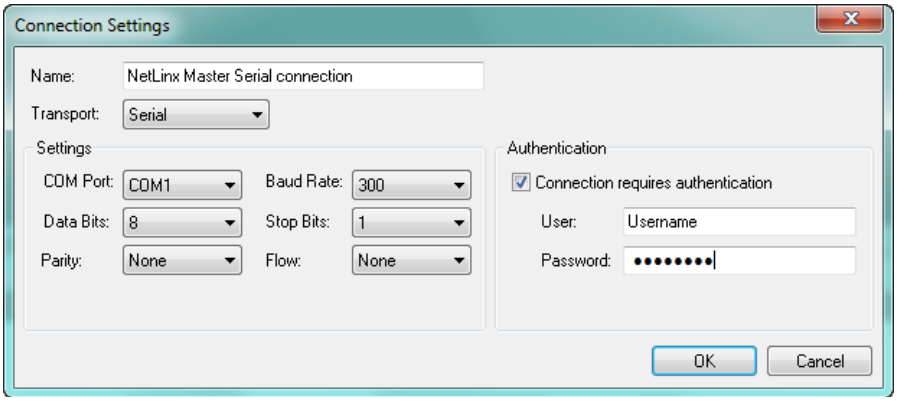


FIG. 395 Connection Settings dialog - Serial Connection example

5. If the target NetLinx Master has authentication enabled, click the **Connection requires authentication** checkbox to enable the *User* and *Password* text fields. Enter the User Name/Password combination to save them as part of this configuration.

NOTE

Refer to the NetLinx Studio online help for details on enabling authentication on NetLinx Masters.

6. Click **OK** to save these settings and return to the *Connect* dialog.

Once this configuration has been saved, it can be selected from the *Connection* dialog (press **Connect** to establish the connection). See *Connecting To a NetLinx Master via Serial* for details.

Editing the Settings on an Existing Connection Configuration

1. Select **Transfer** > **Connect** to open the *Connect* dialog.
2. Select the configuration that you want to edit from the *Connection* drop-down list.
3. Click **Properties** to invoke the *Connection Settings* dialog.
4. Edit the communication settings for the selected configuration as needed, and click **OK** to save your changes and return to the *Connect* dialog.

Connecting to a NetLinx Master

Once a TCP/IP or Serial connection configuration has been defined and saved (see *Defining and Saving Connection Configurations* section on page 343), the process of actually connecting to the Master is simple:

1. Select **Transfer** > **Connect** to open the *Connect* dialog.
2. Select the appropriate connection configuration from the **Connection** drop-down menu (FIG. 396):

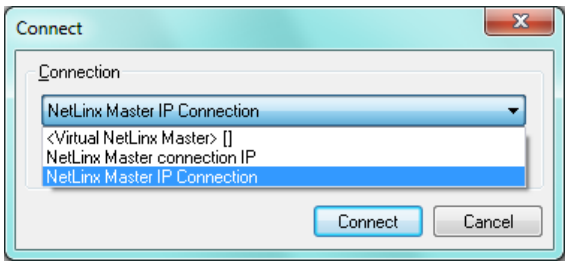


FIG. 396 Connect dialog

3. Click **Connect**.

The status bar reflects the status of the connection as follows (FIG. 397):

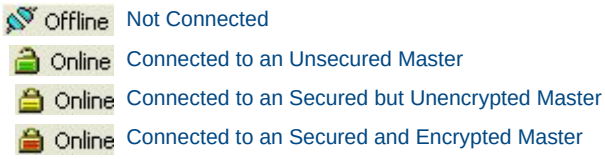


FIG. 397 Status Bar - Connection Status Icons

Sending a Panel File To a NetLinx Master

1. Select **Transfer > Send To Panel**.

*Use the **Send File To Panel** option to send a project file without having to open it in TPD4.*

If you are not already connected to the Master, the *Connect* dialog is invoked:

a. Select the appropriate connection configuration from the *Connection* drop-down list and

b. Click **Connect** to establish the connection.

2. Once communication is established, the *Send To Panel* dialog is invoked (FIG. 398):

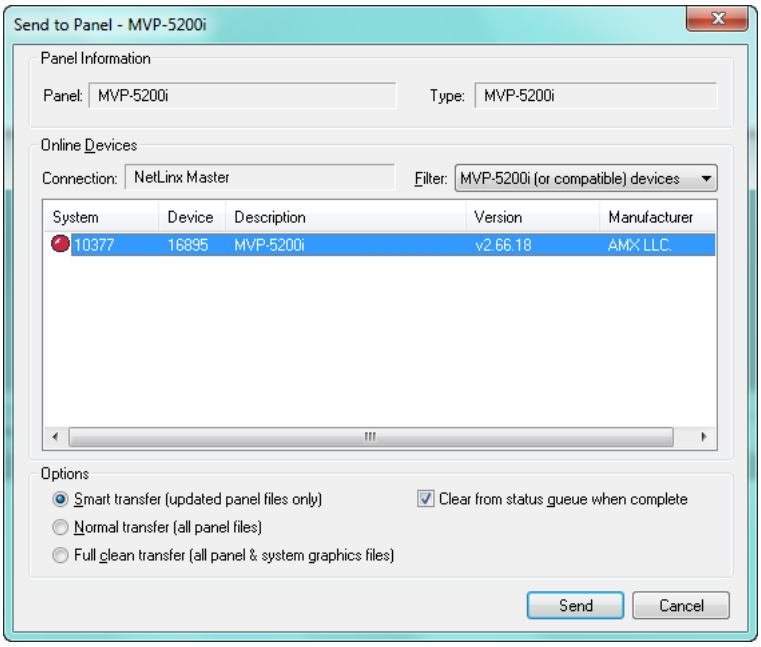


FIG. 398 Send To Panel dialog

3. Select one or more target panels to include in the transfer.

4. Under *Options*, select transfer options as desired:

- **Smart transfer (updated panel files only)**: Select to utilize the *Smart Transfer* feature, which reduces the transfer time by only replacing those panel files that have been updated (relative to the files already loaded in the panel). Any bitmaps, sound files and fonts that all already resident on the target panel, or in your panel file on your PC (for uploads) are not included in the transfer.
- **Normal transfer (all panel files)**: This option sends all panel files.
- **Full clean transfer (all panel & system graphic files)**: Select this option to automatically wipe out any existing project files resident in the target panel before loading the new panel file.

If you are simply sending a panel file to a panel, you don't need to use the Full Clean option, since any existing panel files on the target panel will be wiped out anyway. The Full Clean option adds considerable time to the transfer, since it involves sending many more files, and is not necessary in most cases.

- **Clear from status queue when complete**: This option (enabled by default) clears each transfer from the Transfer Status Window when complete.

5. Click **Send**.

The status of the Transfer is indicated in the *Transfer Status* window (FIG. 399):

Receiving a Panel File From a NetLinx Master

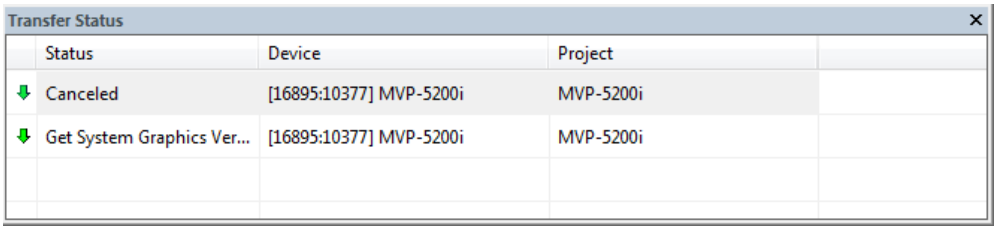


FIG. 399 Transfer Status window

Use the **Transfer > Receive From Panel** option (or click the toolbar button) to connect to a Master and upload a panel file from a compatible G4 touch panel on that Master's bus.

1. Select **Transfer > Receive From Panel**.
   If you are not already connected to the Master, the *Connect* dialog is invoked:
   a. Select the appropriate connection configuration from the *Connection* drop-down list and
   b. Click **Connect** to establish the connection.
2. Once communication is established, the *Receive From Panel* dialog is invoked (FIG. 400):

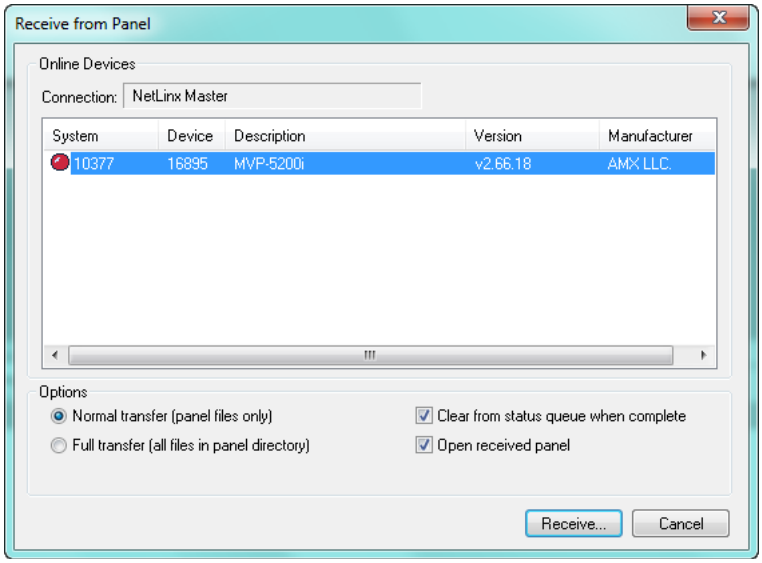


FIG. 400 Receive From Panel dialog

3. Select one or more target panels to include in the transfer.
4. Under *Options*, select transfer options as desired:
   - **Normal transfer (panel files only)**: This option receives only panel files from the source panel.
   - **Full transfer (all files in panel directory)**: Select this option to receive all project files from the source panel.
   - **Clear from status queue when complete**: This option (enabled by default) clears each transfer from the Transfer Status Window when complete.
   - **Open received panel**: Select this option to automatically open the panel file once it is received.
5. Click **Receive**.
6. Select a target directory for the received files in the *Receive From...* dialog (FIG. 401).

7. Click **Save** to start the transfer.

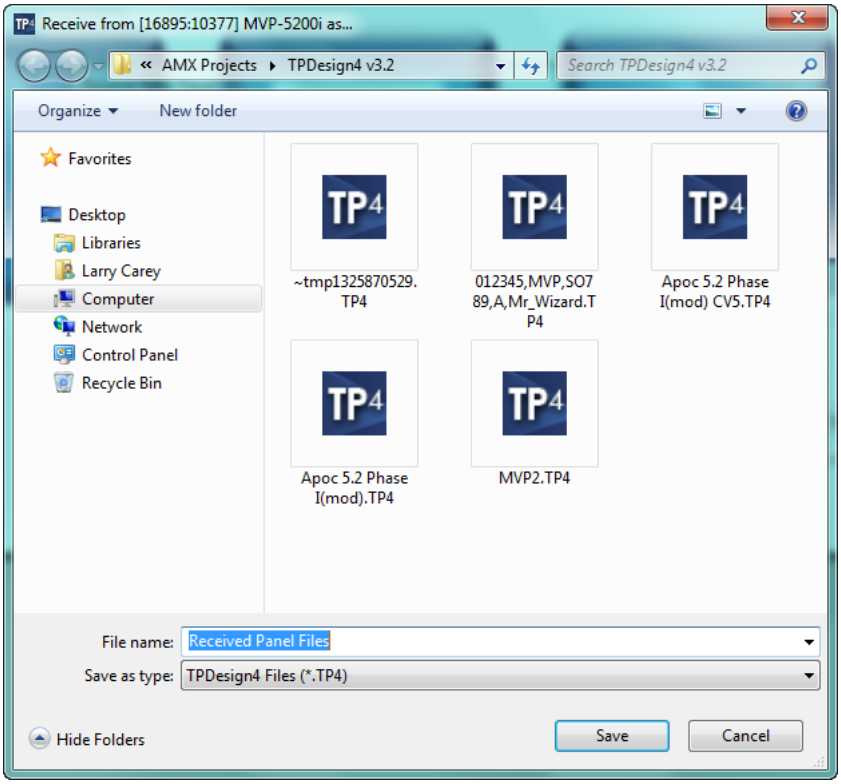


FIG. 401 Receive From Panel dialog

The status of the Transfer is indicated in the *Transfer Status* window (FIG. 402):

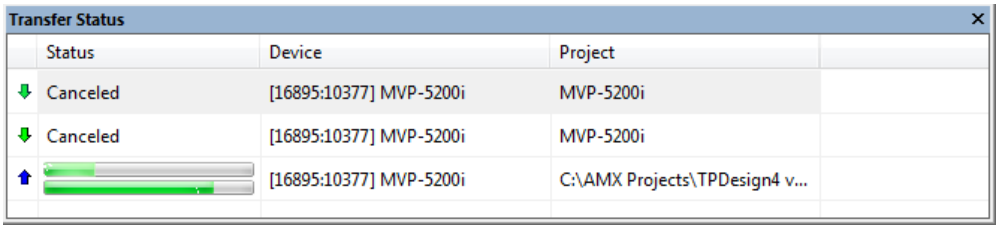


FIG. 402 Transfer Status window

Virtual NetLinx Master Transfers (TCP/IP or USB)

TPD4 supports direct connection to G4 panels for situations where the target panel is not connected to a NetLinx Master. In this situation, you can use your PC's Ethernet connection to connect directly to the panel, using your PC as a *Virtual NetLinx Master*.

This feature is primarily intended for use by designers, to allow them to create panel files and then test them on a panel without necessarily having access to a Master.

Virtual NetLinx Master TCP/IP Transfers

In this situation, you can use your PC's Ethernet connection to connect directly to the panel, using your PC as a *Virtual NetLinx Master*.

There are three basic steps to Virtual NetLinx Master TCP/IP file transfers:

1. Configuring the Touch Panel for Virtual NetLinx Master TCP/IP Transfers
2. Configuring TPD4 for Virtual NetLinx Master TCP/IP Transfers
3. Transferring Files Using a Virtual NetLinx Master TCP/IP Connection

Configuring the Touch Panel for Virtual NetLinx Master TCP/IP Transfers

If it is not already powered up and connected, apply power to the touch panel and verify that it is connected to the LAN via the TCP/IP connector on the rear (or side) of the panel (G4 panels only).

To configure the panel for Virtual NetLinx Master transfers via TCP/IP:

1. On the Touch Panel, press and hold the Setup Access button (on the front panel, below the touch screen) for 3 seconds to access the *Setup* page.
2. Press the **Protected Setup** button to access the *Protected Setup* page.
3. Use the on-screen keyboard to enter the password (the default password is **1988**).
4. Press the **System Connection** button to access the *System Connection Setup* page.
5. Select **Ethernet** as the *Master Connection*.
6. Select **URL** as the *Connection Mode*.
7. Set the *System Number* to **0** (zero).
8. Select the **Master URL / IP** input box and enter the IP address of your PC (displayed in the Virtual NetLinx Master Properties dialog).
9. Press the **Back** button to return to the *Protected Setup* page and press the **Reboot** button to reboot the panel.
10. After several seconds, the panel should appear in the online device tree, listed as *Virtual NetLinx Master*. Once you can see the device online, you may transfer panel files to and from the G4 device without the need for an intermediate NetLinx master.

Configuring TPD4 for Virtual NetLinx Master TCP/IP Transfers

1. Select **Transfer** > **Connect** to open the Connect dialog (or click the toolbar button).
2. Select **<Virtual NetLinx Master>[]** from the *Connection* drop-down list.

The Virtual NetLinx Master connection allows G4 devices to directly connect to TPDesign4 instead of a physical NetLinx master for transfers.

3. Click the **Properties** button to access the Virtual NetLinx Master Properties dialog, which displays the Host Name and IP address for your PC.
4. Write down the IP address.
   a. Enter this IP address as the Master's URL/IP on the *System Connection Setup* page on the touch panel.
   b. Once you have entered the IP address of the PC (acting as a *Virtual NetLinx Master*), press the **Reboot** button on the *System Connection Setup* page to reboot the panel.

5. Select **Transfer > Send to Panel** to open the Send To Panel dialog. The panel should appear in the list of Online Devices.
   - Once you can see the panel online, you may transfer the files.
   - To receive files from the panel, select **Transfer > Receive From Panel**.

Allow several seconds after the panel is rebooted for it to appear in the Online Device list in the Send To Panel or Receive From Panel dialogs.

Transferring Files Using a Virtual NetLinx Master TCP/IP Connection

Once you have configured both the touch panel and TPD4 for Masterless TCP/IP Transfers, you are ready to transfer files to/from the panel without the need for an intermediate master:

Sending Files To the Panel:

1. Select **Transfer > Send to Panel** to open the Send to Panel dialog.
2. Select any **Options** (*Smart Transfer*, *Normal Transfer* or *Full Clean*) as desired.
3. Click the **Send** button to initiate the transfer. The progress of the transfer is indicated in the Status column of the Transfer Status Window.

Receiving Files From The Panel:

1. Select **Transfer > Receive from Panel** to open the Receive from Panel dialog.
2. Select any **Options** (*Smart Transfer*, *Normal Transfer* or *Full Clean*) as desired.
3. Click the **Receive** button to initiate the transfer. The progress of the transfer is indicated in the Status column of the Transfer Status Window.

Powering Up and Connecting the Panel (via TCP/IP)

1. Verify that an Ethernet cable is connected from either the rear (NXT models) or side (NXD models) of the panel to a valid Ethernet Hub.
2. Connect the terminal end of the PSN6.5 power cable to the 12 VDC power connector on the rear/side of the touch panel.
3. Verify the green Ethernet LED (on the rear Ethernet port) is illuminated (indicating a proper connection).

Virtual NetLinx Master USB Transfers

TPD4 supports direct connection to G4 panels via USB, for situations where the target panel is not connected to a NetLinx Master.

There are three basic steps to Virtual NetLinx Master USB file transfers:

1. Configuring the Touch Panel for Virtual NetLinx Master USB Transfers
2. Configuring TPD4 for Virtual NetLinx Master USB Transfers
3. Transferring Files Using a Virtual NetLinx Master USB Connection

Installing the AMX USB Driver for G4 Touch Panels

After installation of TPD4, please follow the steps below to ensure a valid USB connection to the G4 panels:

1. Power up the Panel *without the USB cable connected to the panel*.
2. Plug in the USB cable into the G4 panel - an USB icon is displayed in the System Tray.
3. Double click on the icon to bring up the list of USB devices - you should see the **AMX USB LAN LINK** device in the list). If the *Install Driver* dialog doesn't appear automatically, select the *Properties* button and then the *Update Driver* button.
4. When the *Install Driver* dialog opens, click on the **Next** buttons, accepting all the default prompts.
5. The OS will complain about the fact that the driver you are installing/updating does not have a digital signature. This is acceptable; select to continue the installation.
6. After installation is complete, you are ready to connect to the USB port of the G4 panel. This is done via the *Virtual NetLinx Master* connection in the Connect dialog (**Transfer > Connect**).

Configuring the Touch Panel for Virtual NetLinx Master USB Transfers

If it is not already powered up and connected, apply power to the touch panel and verify that it is connected to the LAN via the TCP/IP connector on the rear (or side) of the panel (G4 panels only).

To configure the panel for Virtual NetLinx Master transfers via USB:

1. Press and hold the grey Front Setup Access button (below the touch screen) for 3 seconds to access the *Setup* page.
2. Press the **Protected Setup** button to access the *Protected Setup* page.
3. Use the on-screen keyboard to enter the password (the default password is **1988**).
4. Press the **System Connection** button to access the *System Connection Setup* page.
5. Select **USB** as the *Master Connection* (this selection causes all other fields in the Master Connection section become read-only).
6. Press the **Back** button to return to the *Protected Setup* page and press the **Reboot** button to reboot the panel.
7. After several seconds, the panel should appear in the online device tree, listed as *Virtual NetLinx Master.* in the Send To Panel or Receive From Panel dialog
8. Once you can see the device online, you may transfer panel files to and from the G4 device without the need for an intermediate NetLinx master.

Configuring TPD4 for Virtual NetLinx Master USB Transfers

1. Select **Transfer** > **Connect** to open the Connect dialog (or click the toolbar button).
2. Select **<Virtual NetLinx Master>[]** from the *Connection* drop-down list.

The Virtual NetLinx Master connection allows G4 devices to directly connect to TPDesign4 instead of a physical NetLinx master for transfers.

3. Select **Transfer** > **Send to Panel** to open the Send To Panel dialog. The panel should appear in the list of Online Devices.
   - Once you can see the panel online, you may transfer panel files.
   - To receive files from the panel, select **Transfer** > **Receive From Panel**.

Allow several seconds after the panel is rebooted for it to appear in the Online Device list in the Send To Panel or Receive From Panel dialogs.

Transferring Files Using a Virtual NetLinx Master USB Connection

Once you have configured both the touch panel and TPD4 for Masterless USB Transfers, you are ready to transfer files to/from the panel without the need for an intermediate master:

Sending Files To the Panel:

1. Select **Transfer** > **Send to Panel** to open the Send to Panel dialog.
2. Select any **Options** (*Smart Transfer*, *Normal Transfer* or *Full Clean*) as desired.
3. Click the **Send** button to initiate the transfer. The progress of the transfer is indicated in the Status column of the Transfer Status Window.

Receiving Files From The Panel:

1. Select **Transfer** > **Receive from Panel** to open the Receive from Panel dialog.
2. Select any **Options** (*Smart Transfer*, *Normal Transfer* or *Full Clean*) as desired.
3. Click the **Receive** button to initiate the transfer. The progress of the transfer is indicated in the Status column of the Transfer Status Window.

Powering Up and Connecting the Panel (via USB)

1. Connect the terminal end of the PSN6.5 power cable to the 12 VDC power connector on the rear or side (depending on the model) of the touch panel.
2. Use a (type-A) USB cable to connect the panel to an available USB port on your PC.

NOTE

First plug the USB cable into the PC, then connect to the panel.

MVP-5200i USB Driver

The MVP-5200i utilizes a native RNDIS USB driver. This driver utilizes Ethernet-over-USB.

When the MVP-5200i device is connected to the computer, it should create a new LAN connection (see *My Computer | My Network Places | View network connections*).

It is necessary to supply a static IP address for this LAN connection.

To enter a static IP address for the connection, you must edit the properties of the TCP/IP interface of the connection itself, via Windows Network Connections settings:

1. To launch the Network Connections dialog, select **Start > Programs > Accessories > Communications > Network Connections (**FIG. 403).

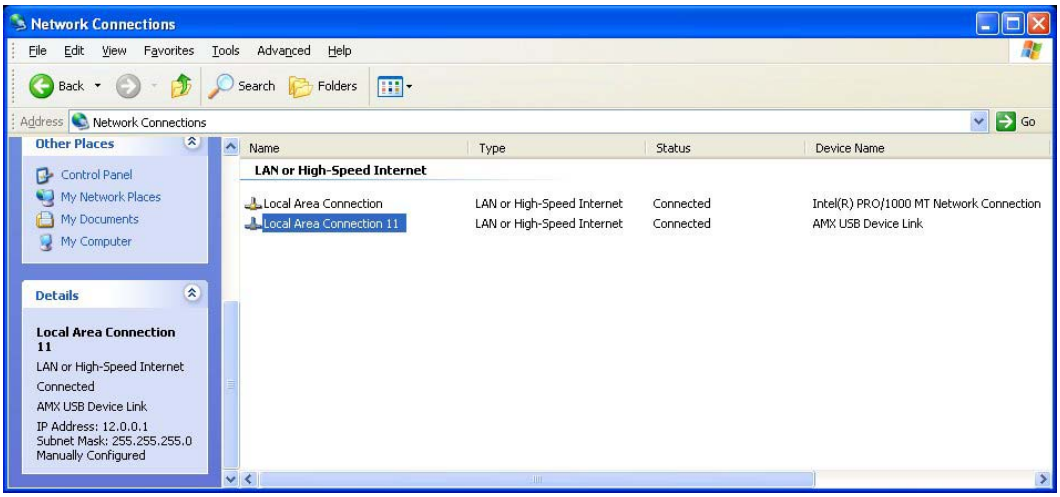


FIG. 403 Network Connections dialog

2. Right-click on the *Network Connection* that indicates "**AMX USB Device Link**" (FIG. 404), and select **Properties** from the context menu.

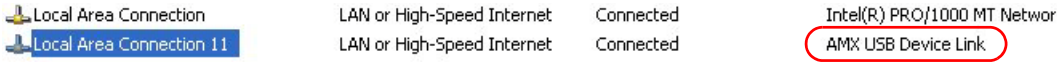


FIG. 404 Network Connection - AMX USB Device Link

This invokes the *Local Area Connection Properties* dialog (FIG. 405).

3. Select **Internet Protocol (TCP/IP)**, and click on **Properties**. This invokes the *Internet Protocol (TCP/IP) Properties* dialog (FIG. 406).
4. Select **Use the following IP address**, and enter the desired *IP Address* and *Subnet Mask* for the panel.
5. Click **OK** to save your changes.

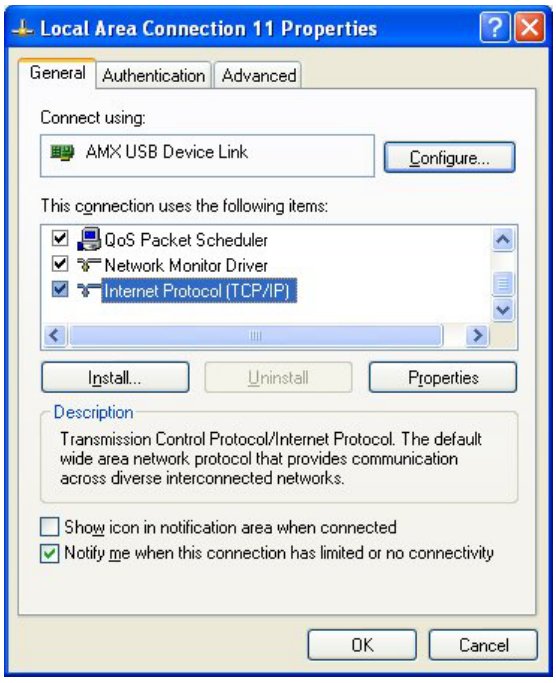


FIG. 405 Local Area Connection Properties dialog

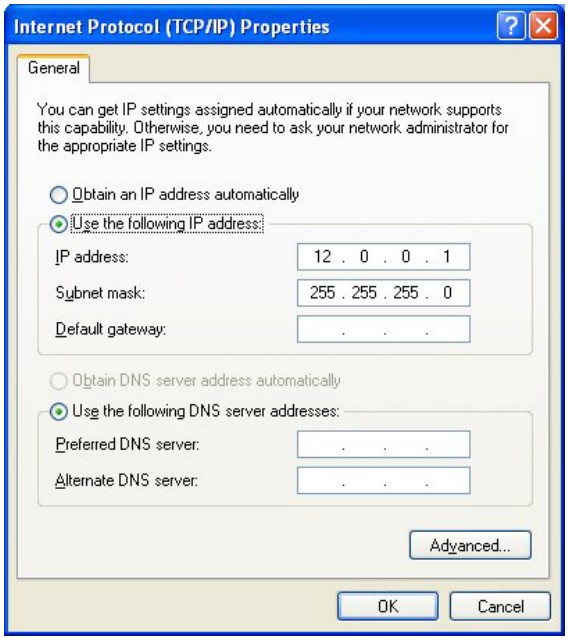

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
12 . 0 . 0 . 1
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

FIG. 406 Internet Protocol (TCP/IP) Properties dialog

NOTE

The static IP assigned to this connection should be on the same subnet as the IP address entered on the device Setup Pages (Protected Setup | System Settings | IP Settings | IP Address).

Program Preferences

Setting Program Preferences

Select **Edit > Preferences** to open the Preferences dialog, where you can set general program preferences for TPD4. This dialog contains four tabs:

- Application: The items in this tab relate to Startup, Undo/Redo Support and Miscellaneous program settings.
- Appearance: The items in this tab relate to the Design View window.
- Directories: The items in this tab allow you to specify default directories for Panel files, Backup copies and the image library directory.
- Editor Selection: The items in this tab allow you associate external editing programs with image and sound files that can be accessed through TPD4.

Use the Customize dialog to customize the TPD4 GUI.

Quick Input

Select *Quick Input* from the Edit menu or Design View context menu to access the Quick Input sub-menu.

The Quick Input setting determines how typing directly into a Design View or into the State Manager will be handled:

- **Current Property -** This setting redirects keyboard input to the currently selected property on the currently visible tab of the Properties Window (assuming one is selected).

  For example, if you select the *Name* property (in the General tab of the Properties control window), any time you select a button in the Design View, you can just type and press the Enter key to enter a new button name for the selected button.

The result of the keystroke will depend on the property selected.

- **Text -** This setting redirects keyboard input to the button *Text* property for all selected button states (in the States tab of the Properties window).

  For example, if you select several states on a Multi-State button (in the State Manager window), you can type and press the Enter key to enter new button text for the selected states. If no states are selected, the text will be applied to all states of the button selected in the Design View.
- **Disabled -** Disables the Quick Input option.

Undo/Redo Support

TPD4 supports full Undo / Redo functionality at the panel level. This means that each panel file that is open in the program maintains a separate undo/redo stack and manages this for the user. You may either click the Undo or Redo toolbar icons, or click **Edit > Undo** or **Edit > Redo**.

Click the down-arrows to view a history list that lists up to 25 of the most recent actions. Click to select one or more actions to be undone/redone.

The commands alter their text dynamically to indicate which action is next in the undo/redo list. Selecting either option will immediately undo/redo the last action. These actions are independent of any file saves, therefore you may undo past a save if you so desire.

Once a panel file is closed, it's undo/redo stack is flushed and is no longer available.

The following actions may be undone/redone:

- Button Property Changes
- Page / Popup Page Renames

- Button Deletions / Cuts
- Button Creations / Pastes
- Page / Popup Page Deletions / Cuts
- Page / Popup Page Creations / Pastes
- State Deletions / Cuts
- State Creations / Pastes
- Copying/Cutting/Pasting images and sounds

Preferences Dialog - Application tab

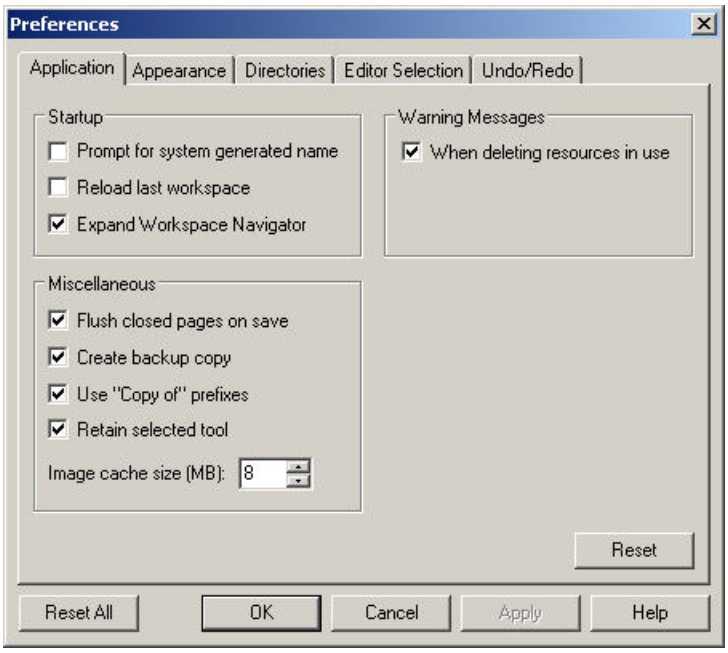


FIG. 407 Preferences Dialog - Application tab

The items in the Application tab include:

Startup

- **Prompt for system generated name:** This option will default the checkbox for system generated filenames (in the New Project Wizard) to the checked position. With this option unchecked, system generated filenames are not generated, although the data that makes them up is still saved.
- **Reload last workspace:** This option will reopen the last panel file and the pages (including popup pages) that were open when the application was closed (assuming that a panel file was open when the application was closed).

NOTE

*If the System Page Template was opened as part of the Workspace, the **Reload last workspace** option will cause the application to attempt to open the (password-protected) System Page Template as part of the last opened workspace.*

In this case you will be presented with the Enter Access Password dialog. Since there is not a password to unlock the file, by design the only option is to open the System Page Template as a **Read-Only** file.

- **Expand Workspace Navigator:** This option will expand the tree structure (in the Workspace Navigator - Pages tab) on application startup. Note that this option does not take effect immediately on pressing **Apply**, but will take effect the next time you open a project file.

Miscellaneous

- **Flush Closed Pages on Save:** When enabled, this option flushes system memory of any pages that were previously opened but now closed, when the project is saved successfully (*default = enabled*).
- **Create backup copy:** This option saves a backup copy of the panel file to the backup folder every time you perform a save operation.
- **Use "Copy of" prefixes:** This option automatically adds the prefix "Copy of" to any pasted pages and popup pages, if a name conflict occurs. With this option unchecked, the user will be asked to resolve the name conflict.
- **Retain selected tool:** This option locks the selected tool (Selection Tool or Button Draw Tool). With this option unchecked, the tool is reverted to the Selection Tool at the completion of every button draw operation.
- **Image Cache Size (MB):** Use the up and down arrows to adjust the size of the image cache (*default = 8 MB*). The image cache size value specifies the amount of memory allocated for images used in displaying buttons (in the Design View, State Manager, and Button Preview). If an image is not found in the in-memory cache, it must be loaded again from disc, which is a much slower operation. Increase the cache size to keep more images in memory (potentially, depending on their size) to speed up loading and displaying those images.

Warning Messages

- **When deleting resources in use:** Click to receive a warning from TPD4 when you attempt to delete resources that are currently being used by the open project.

Reset: Click to reset all options in this tab to their default settings.

Reset All: Click to reset all options in all tabs to their default settings.

Click **Apply** to apply any changes.

Click **OK** to save your changes and close the Preferences dialog.

Click **Cancel** to close the Preferences dialog, without saving any changes.

Preferences Dialog - Appearance tab

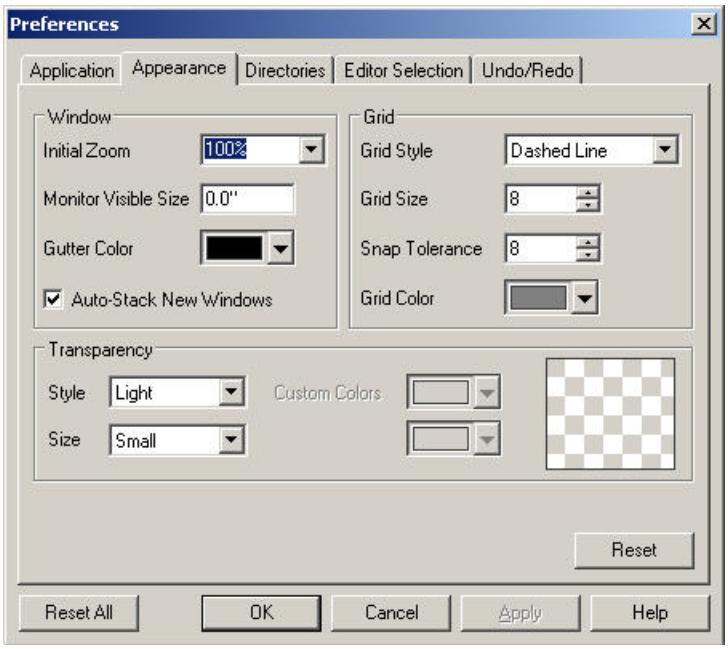


FIG. 408 Preferences Dialog - Application tab

The items in the Appearance tab include:

Window

- **Initial Zoom:** Click the down arrow to open a drop-down list of the zoom settings that can be applied as the default initial zoom setting for all new Design View windows.

  This setting does not affect the zoom setting for pages that are already open. You can also manually set the zoom factor on any page or popup page by selecting the page and using the Zoom Toolbar, where you can either use the zoom in and out icons to zoom in/out (in 25% increments), or select the zoom setting (including *Fit Page*, *Fit Width*, *Fit Height*) from the drop-down list.

Once of the Initial Zoom options is called Actual Size. Because there are variations in dots per inch measurements among panels and among computer monitors, this option allows you to see how large a page will appear when actually displayed on the panel. To use this option, you must first specify their monitor's visible size (in the Monitor Size field - see below). This number should represent the diagonal measurement of the visible portion of the monitor or of the space occupied by a full-screen image, as opposed to the monitor's overall diagonal size. For example, most 21" monitors typically have between a 19.5" and 20" viewable area.

- **Monitor Size:** Use this field to specify the size of the visible portion of the monitor that your pages will actually be displayed on (see *Initial Zoom* and *Note* above).
- **Gutter Color:** The *Gutter* is the area around the outer edge of the Design View windows. Click the down arrow to open a palette used to set the default color for the gutter on all new Design View windows.
- **Auto Stack New Windows:** This setting causes all page windows to stack directly on top of the last active (selected) page window. Use this option if you are working on a resolution or zoom setting that takes up most or all of your screen area, and you want to work with multiple pages without cascading them (which could result in part of the page window being outside of the viewable area). Default = *enabled*.

*The **Auto Stack** and **Initial Zoom** settings are retained the next time you launch the program.*

Grid

- **Grid Style:** Select from the drop-down list of styles that the grid can be displayed in (*Line*, *Dashed Line* or *Dots*).
- **Grid Size:** Use the up/down arrows to set the default grid size (measured in pixels). The range is 4 - 255, the default setting is *8*.
- **Snap Tolerance**: Use the up/down arrows to specify the snap tolerance for the grid. The snap tolerance represents the number of pixels within which objects in the Design View window will "snap" to the nearest grid line (applicable only when the Snap To Grid option is enabled, via the Button Selection/Drawing Tools toolbar).
- **Grid Color**: Click the down arrow to open a palette used to set the default color for the grid (if enabled) on all new Design View windows.

Transparency

Transparent colors in TPDesing4 are represented by a checkerboard pattern. This set of options allow you to modify the way that the transparency checkerboard appears. In certain situations, changing the checkerboard style to different sizes, shades and/or colors can facilitate viewing and working with graphics.

NOTE

The Transparency checkerboard is visible on pages and popup pages that are transparent, in the State Manager when a state is transparent, and in the Button Preview when a state is transparent.

- **Style:** Click the down arrow to open a drop-down list of available checkerboard styles that can be used to represent transparency. The options are *Light*, *Medium*, *Dark* and *Custom*. If *Custom* is selected, the Custom Colors option is enabled (see below).
- **Size:** Click the down arrow to open a drop-down list of available checkerboard sizes. The options are *Tiny*, *Small*, *Medium* and *Large*.
- **Custom Colors:** If *Custom* was selected as the Style (see above), then you can specify a custom color combination for the checkerboard by selecting from these two drop-down lists.

Reset: Click to reset all options in this tab to their default settings.

Reset All: Click to reset all options in all tabs to their default settings.

Click **Apply** to apply any changes.

Click **OK** to save your changes and close the Preferences dialog.

Click **Cancel** to close the Preferences dialog, without saving any changes.

Preferences Dialog - Directories tab

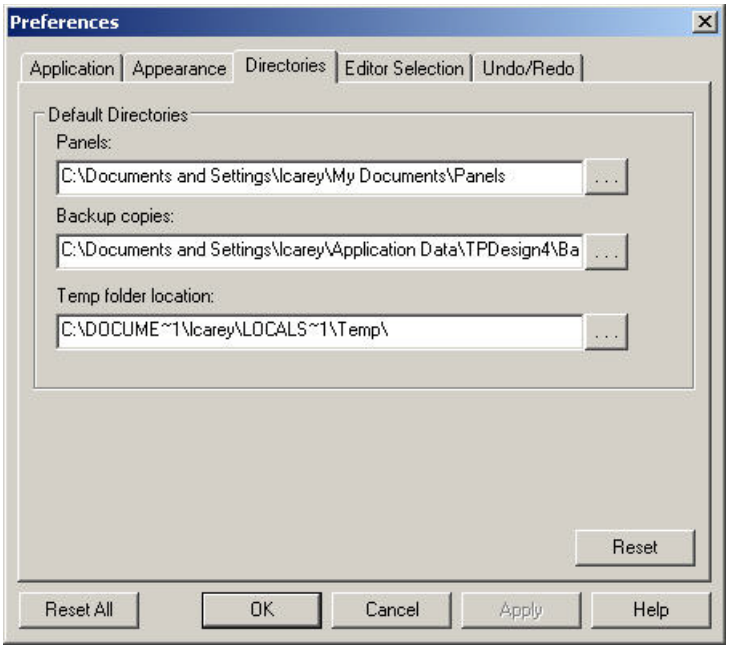


FIG. 409 Preferences Dialog - Directories tab

The items in the Directories tab include:

Default Directories

- **Panels**: This text box displays the directory that is currently set as the default directory for all Panel (or project) files (*.TP4). Click the browse button (**...**) to open the Browse For Folder dialog, where you can navigate to an alternative folder.
- **Backup copies**: This text box displays the directory that is currently set as the default directory for all *.TP4 Backup files. Click the browse button (**...**) to open the Browse For Folder dialog, where you can navigate to an alternative folder.

- **Temp folder location**: Use this field to set the location of the folder TPD4 uses for any temp files. This feature accommodates the potential for large projects which need an especially large amount of temporary disk space.

NOTE

If you either have a panel open or a transfer in progress the Temp Folder Location field is disabled. In these situations the Temp folder cannot be changed since it is being actively used. This field is re-enabled once all panels are closed and transfers are completed.

Reset: Click to reset all options in the Directories tab to their default settings.

Reset All: Click to reset all options in all tabs to their default settings.

Click **Apply** to apply any changes.

Click **OK** to save your changes and close the Preferences dialog.

Click **Cancel** to close the Preferences dialog, without saving any changes.

Preferences Dialog - Editor Selection tab

The options in the *Editor Selection* tab allow you to associate external programs of your choice with image and sound files, to accommodate in-place editing of the images and sounds used in your Project (FIG. 410).

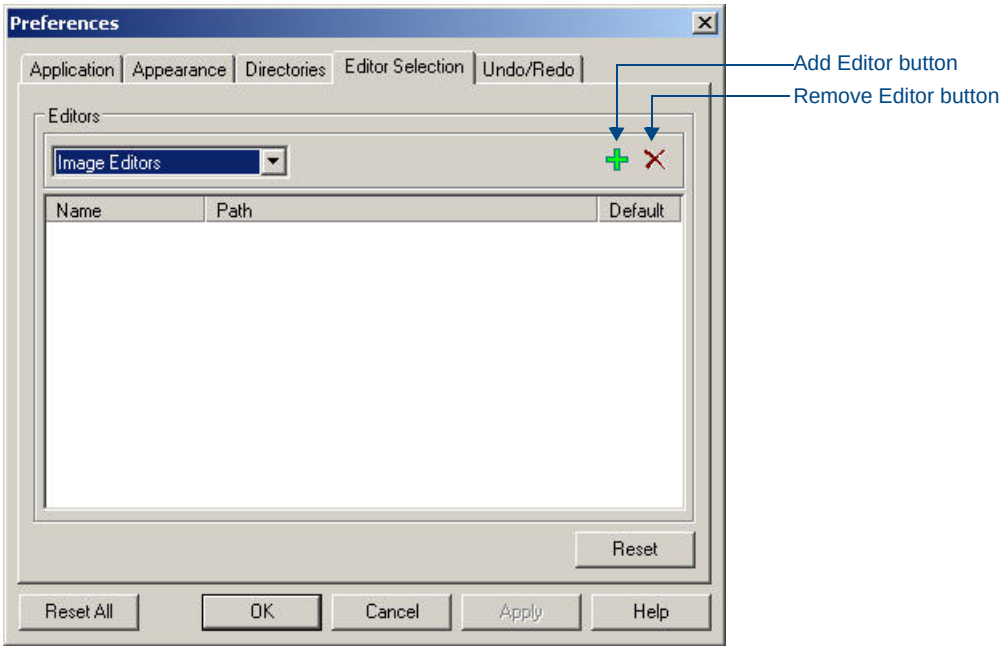


FIG. 410 Preferences Dialog - Editor Selection tab

Once you have associated an external program to image and/or sound editor, you can edit image and files by selecting the file in either the Images or Sounds tab of the Resource Manager and clicking the **Edit** button.

The items in the Editor Selection tab include:

- **Editor Type menu**: Click the down arrow to select either *Image Editors* or *Sound Editors* from the drop-down list.
- **Add Editor button**: Click to add either an image or a sound editing program to the *Editors* list (depending on the *Editor Type* selected).
- **Remove Editor button**: With an editor selected (in the *Editors* list), click this button to remove it from the list, and disassociate it from image or sound files in TPD4.
- **Editors table**: Lists all external image or sound editing programs (depending on the *Editor Type* selected) that have been added, by filename (*.EXE and file path. The *Default* column indicates which of the programs is currently set as the default editor.

Preferences Dialog - Undo/Redo tab

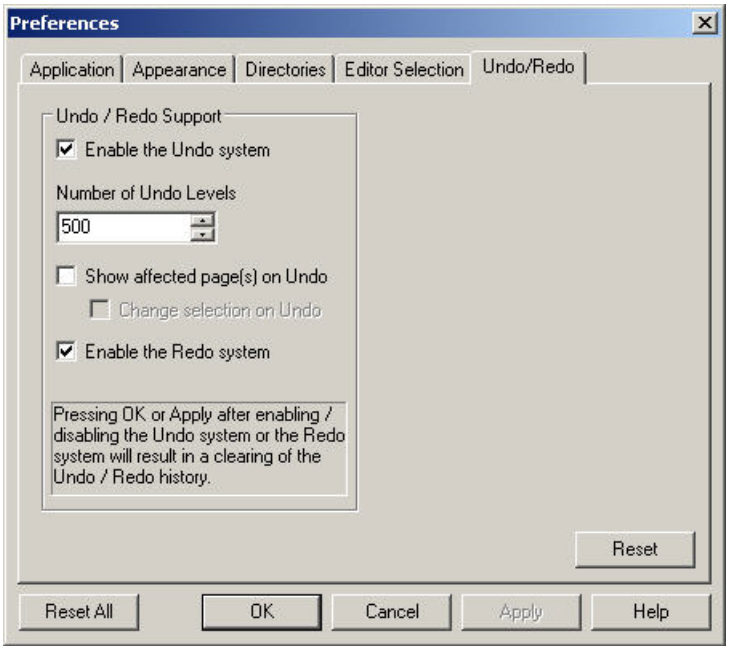


FIG. 411 Preferences Dialog - Undo/Redo tab

Undo / Redo Support

- **Enable the Undo system:** This option enables/disables the ability to undo actions. By default, this option is selected.

NOTE

*Pressing **OK** or **Accept** after enabling/disabling the undo system will result in a clearing of the undo/redo history.*

- **Number of Undo Levels:** Use the up/down arrows to change the number of undo actions allowed (default = 500).
- **Show affected pages on Undo**: With this option enabled, the program will always display the page(s) affected by an undo operation, even they have been closed since that action was performed. For example, if you changed a button property on a button that exists on a page that has been closed, that page will automatically be reopened to show the button that was affected at the point that the Undo is performed.
- **Change selection on Undo:** When enabled, this option will automatically change the selection so that the item(s) affected by the Undo / Redo action are selected.
- **Enable the Redo system:** This option enables/disables the ability to redo actions. By default, this option is selected.

Reset: Click to reset all options in this tab to their default settings.

Reset All: Click to reset all options in all tabs to their default settings.

Click **Apply** to apply any changes.

Click **OK** to save your changes and close the Preferences dialog.

Click **Cancel** to close the Preferences dialog, without saving any changes.

Adding an External Editing Program for Image Files

Use the options in the Editor Selection tab of the Preferences dialog to associate one or more image editing programs with image files in TPD4 projects. Note that you can associate multiple editor programs with image files, but one is specified as the default image editor:

1. Select **Edit > Preferences** to open the Preferences dialog, and open the Editor Selection tab. Note that **Image Editors** is already selected in the *Editor Type* drop-down menu.
2. Click the **Add Editor** button (see FIG. 410 on page 360) to access the Choose Editor dialog (FIG. 412).

FIG. 412 Choose Editor dialog

3. Click the Browse button (**...**) to locate and select the desired program's executable (.EXE) file, in the *Open* dialog.
4. The first program added to the Editors list is automatically designated as the default image editor. If you add additional programs to the list, you have the option (in the Choose Editor dialog) to set the default image editor (FIG. 413):

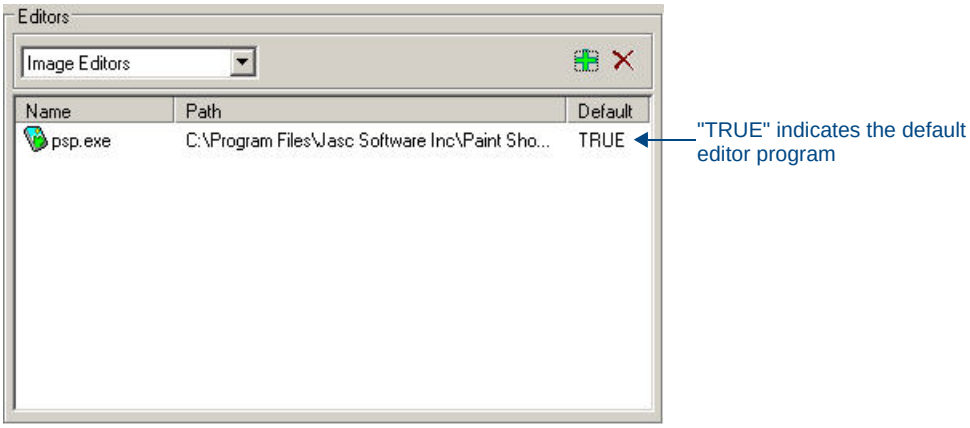


FIG. 413 Preferences dialog (Editor Selection tab) - Editor added

5. Click **OK** in the *Choose Editor* dialog to add the selected program to the *Editors* list.

Adding an External Editing Program for Sound Files

1. Select **Edit** > **Preferences** to open the Preferences dialog, and open the Editor Selection tab.
2. Click the down arrow and select **Sound Editors** from the *Editor Type* drop-down menu.
3. Click the **Add Editor** button (see FIG. 410 on page 360) to access the Choose Editor dialog (FIG. 412).

FIG. 414 Choose Editor dialog

4. Click the Browse button (**...**) to locate and select the desired program's executable (.EXE) file, in the *Open* dialog.
5. The first program added to the Editors list is automatically designated as the default image editor. If you add additional programs to the list, you have the option (in the Choose Editor dialog) to set the default image editor (FIG. 413):

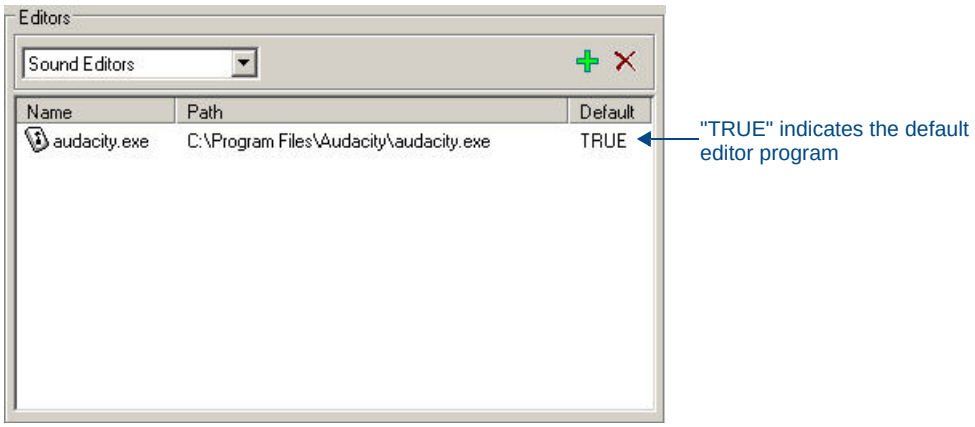


FIG. 415 Preferences dialog (Editor Selection tab) - Editor added

6. Click **OK** in the Choose Editor dialog to add the selected program to the *Editors* list.

Changing the Default External Image or Sound Editor Program

You can change the default image or sound editor program via the Editor Selection tab of the Preferences dialog:

1. Select **Edit** > **Preferences** to open the Preferences dialog, and open the Editor Selection tab (see FIG. 410 on page 360).
2. Select the Editor Type that you want to change the default program for (*Image Editors* or *Sound Editors*) from the drop-down menu.
   - This selection populates the *Editors* table with a listing of all editing programs that have been added.
   - The *Default* column indicates which program is the current default (*TRUE = current default*).
3. Double-click on any program in the list (other than the current default) to access the Choose Editor dialog.
4. Check the **Default Editor** checkbox to set the selected program as the default editor (FIG. 416).

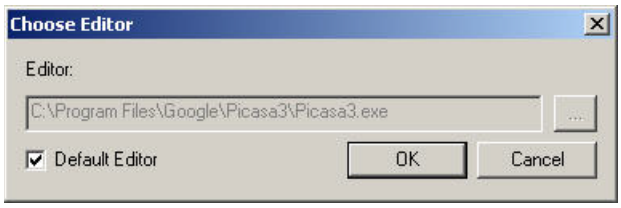


FIG. 416 Choose Editor dialog -Default Editor checked

5. Click **OK** to close the Choose Editor dialog.
6. The new default editor is indicated in the Default column of the *Editors* table (FIG. 417).

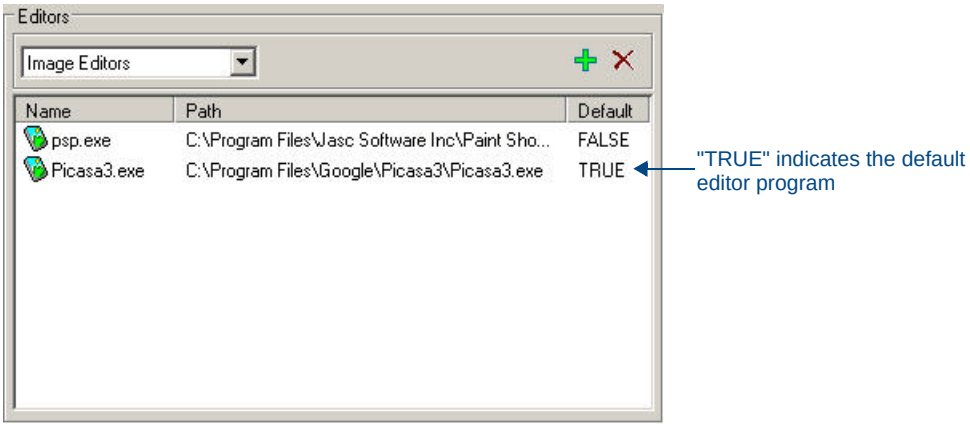


FIG. 417 Preferences dialog (Editor Selection tab) - Default Editor

Working with Dockable Windows

All windows in TPD4 are fully dockable. Dockable windows can be re-arranged within the application window. They automatically snap to the top, bottom, right or left side of the application window, or along the edges of other docked windows. To dock/undock a window, double-click inside the window's title bar.

The dockable windows in TPD4 are:

- Design View
- Properties Control
- Workspace Navigator
- State Manager
- Transfer Status Window
- Button Preview
- Magnifier Window

Moving, Docking and Resizing Dockable Windows

- To move the windows, click on the title bar and drag and drop the window into place. Dockable windows automatically snap into place once they are positioned near an available docking area (along the edges of the application window, or along the edge of another dockable window.
- To dock these windows, drag the window to reposition it next to any border or window frame and the window will automatically snap to the nearest border.
- To stretch the windows, click on any border and drag the border either vertically or horizontally.
- To resize the windows, click on the bottom-left corner of the window border in the area shaded with parallel diagonal lines and drag the corner in any direction.

Toggling the Windows

Each of the dockable windows (Design View, Properties Control, Workspace Navigator, State Manager and Button Preview windows) can be toggled on/off via the options in the View menu. Select or de-select each window to toggle by checking or un-checking the window listings in this menu (checked = window is on/displayed).

Customizing the Toolbars

Adding Buttons To Existing Toolbars

1. Open the Customize dialog (select **View > Customize**), to the *Commands* tab (FIG. 418).

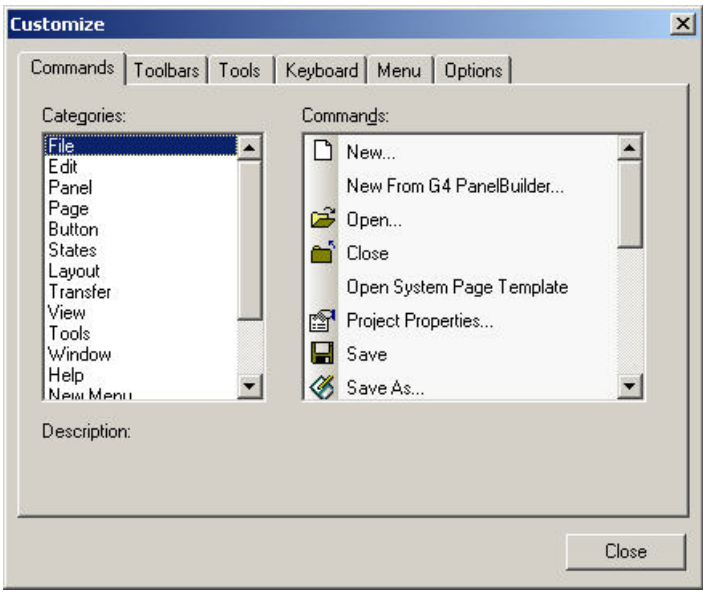


FIG. 418 Customize dialog (Commands tab)

2. Select a command category (under **Categories**). The commands included in the selected category are displayed (under **Commands**), along with their associated toolbar icon, if one exists. Alternatively, select *All Commands* to view a full list of all commands, regardless of category.
3. Click to highlight a command/icon under *Commands*.
4. While holding the mouse-button down, drag the command/icon to a toolbar. Note that the cursor symbol indicates that it is not allowed to be placed anywhere except inside the area of a toolbar (any toolbar).
5. Position the command/icon right where you want to drop it in the toolbar, and release the mouse button.
6. The command/icon is placed as a button in the toolbar (FIG. 419).

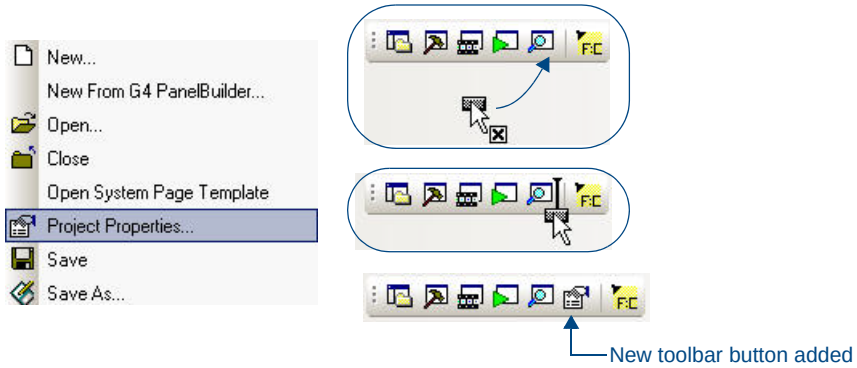


FIG. 419 Adding a toolbar button

Removing Buttons From Existing Toolbars

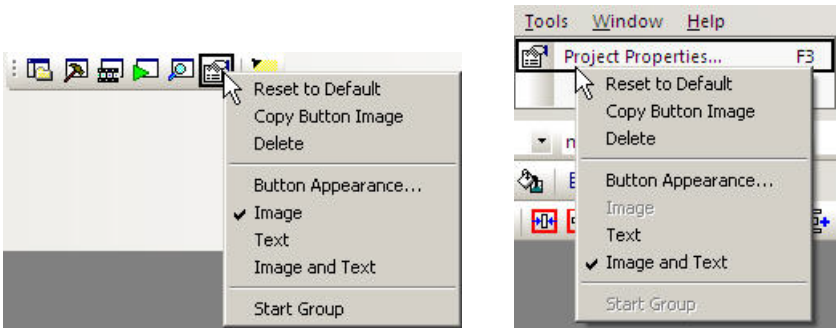
1. Open the Customize dialog (select **View > Customize**).
2. Click to select a toolbar button from an existing toolbar.
3. While holding the mouse button down, drag the button to any area outside of a toolbar. Note that the cursor symbol changes to an "**x**" when the button is dragged outside of the toolbars.
4. Release the mouse button to delete the button from the toolbar.

Alternatively, as long as the Customize dialog is open, you can simply right-click on any button to open the New Command context menu. Select **Delete** to delete the button.

Associating an Icon With a New Command

Once you have added a new command to a Toolbar or Menu, you can associate an icon with the command:

1. Open the Customize dialog (select **View > Customize**).
2. For toolbar buttons, right-click on the select the button that you want to associate an icon with to open the context menu. For menu items, right-click on a menu item (FIG. 420).



Editing a command (toolbar button selected)

Editing a command (menu item selected)

FIG. 420 Editing Commands

3. Select **Button Appearance** to open the Button Appearance dialog.
4. In the Button Appearance dialog, select *Image Only* or *Image and Text* (the *Text Only* option does not allow you to associate an icon).
5. Select an icon from the **User-Defined Image** field.
6. Click **OK**.

Creating a New Custom Toolbar

1. Open the Customize dialog (select **View > Customize**), open to the *Toolbars* tab.
2. Click the **New** button. This opens the Toolbar Name dialog.
3. Enter a name for the new toolbar in the text field and click **OK**.
4. The new toolbar name appears in the **Toolbars** list, along with an empty new toolbar icon.
5. Click and drag to move the new toolbar icon into position, in an empty area near the other toolbars.
6. With the empty toolbar in place, open the Commands tab of the Customize dialog.
7. Select a command category (under **Categories**) to display a list of commands (under *Commands*).
8. Click and drag commands from the **Commands** list and drop them inside the area of the new toolbar. Repeat this process to add as many commands as you like to your custom toolbar(s).

Renaming Custom Toolbars

1. To rename a custom toolbar, select **View > Customize** to open the Customize dialog, and open the Toolbars tab.
2. Select the toolbar you want to rename from the list, and click
3. **Rename** to open the Toolbar Name dialog.
4. Enter the new name in the
5. **Toolbar Name** text field and click **OK** to save the change.

Deleting Custom Toolbars

To delete custom (user-added) toolbars from the TPD4 workspace:

1. Click **View > Customize** to open the Customize dialog.
2. Open the **Toolbars** tab.
3. Click to select a custom toolbar.
4. Click **Delete** to permanently delete the selected toolbar.

NOTE

The standard TPD4 toolbars cannot be deleted.

Customizing the Menus

Adding Commands To Existing Menus

1. Open the Customize dialog (select **View > Customize**), to the *Commands* tab.
2. Open the menu to which you want to add a command.
3. Select a command category (under **Categories**). The commands included in the selected category are displayed (under **Commands**), along with their associated toolbar icon, if one exists. Alternatively, select *All Commands* to view a full list of all commands, regardless of category.
4. Click to highlight a command/icon (under **Commands**).
5. While holding the mouse-button down, drag the command/icon to the open menu.
6. Position the command/icon right where you want to drop it in the menu, and release the mouse button.
7. The command/icon is placed as a new option in the menu (FIG. 421).

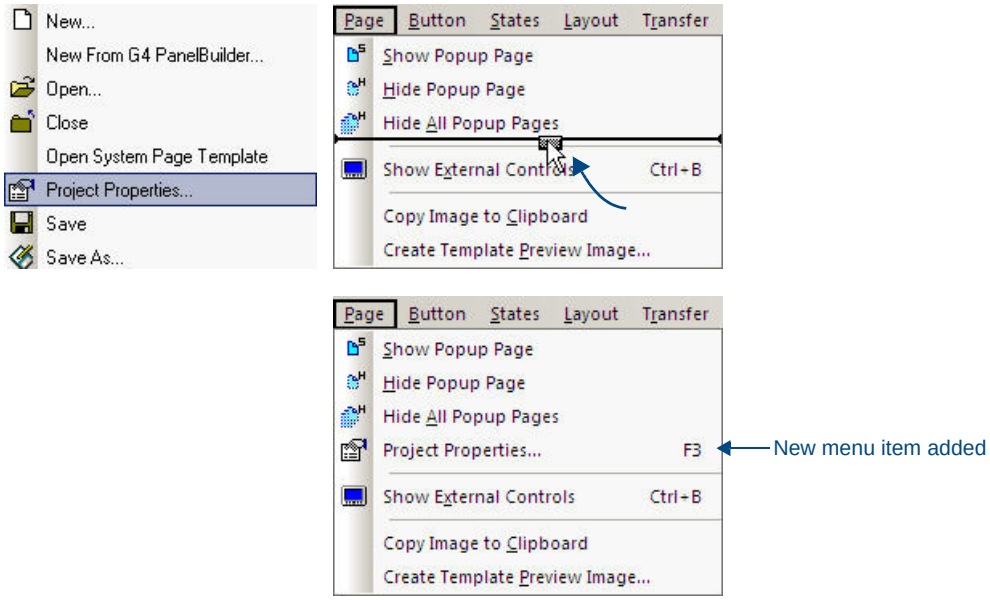


FIG. 421 Adding a menu item

Removing Commands From Existing Menus

1. Open the Customize dialog (select **View > Customize**).
2. Click to select a menu item from an existing menu.
3. While holding the mouse button down, drag the menu item to any area outside of a menu. Note that the cursor symbol changes to an "**x**" when the menu item is dragged outside of the menus.
4. Release the mouse button to delete the item from the menu.

Alternatively, as long as the Customize dialog is open, you can simply right-click on any menu item to open the Command context menu. Select **Delete** to delete the button.

Creating a New Custom Menu

1. Open the Customize dialog (select **View > Customize**).
2. In the *Commands* tab, Select **New Menu** from the **Categories** list. This places the "New Menu" entry in the *Commands* list (FIG. 422).

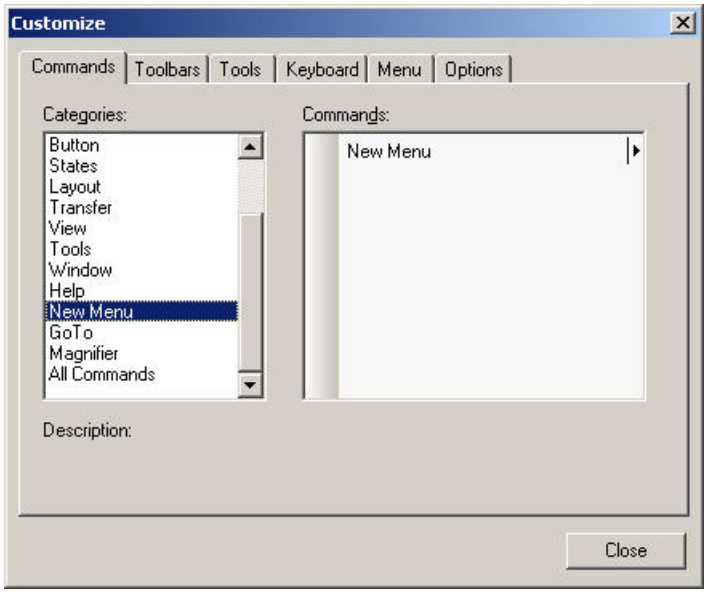


FIG. 422 Customize dialog - New Menu selected

This item represents a new "empty" menu.

3. While holding the mouse button down, drag the New Menu icon to a location within the Menu Bar (FIG. 423).

FIG. 423 Drag the New Menu icon to a location within the Menu Bar

4. Release the mouse button to create the new (empty) menu at the cursor location (FIG. 424).

FIG. 424 New Menu

5. To name the new menu, right-click on the menu to open the New Command context menu, and select **Button Appearance**. This opens the Button Appearance dialog. Type the name for the new menu in the **Button Text** field and press **OK**.
6. Select a command category (under **Categories**) to display a set of commands (under **Commands**).
7. Add commands to the new menu by clicking and dragging commands from the **Commands** list to the new menu (FIG. 425).

FIG. 425 Adding commands to the New Menu

8. Release the mouse button to place the selected command in the new menu.

Adding a Shortcut To an Application In the Tools Menu

Use the options on the Tools tab of the Customize dialog to add/remove shortcuts to external applications in the Tools menu:

1. Select **View** > **Customize** to open the Customize dialog.
2. In the **Tools** tab, click the **New (Insert)** button to create an empty text field in the *Menu Contents* list (FIG. 426).

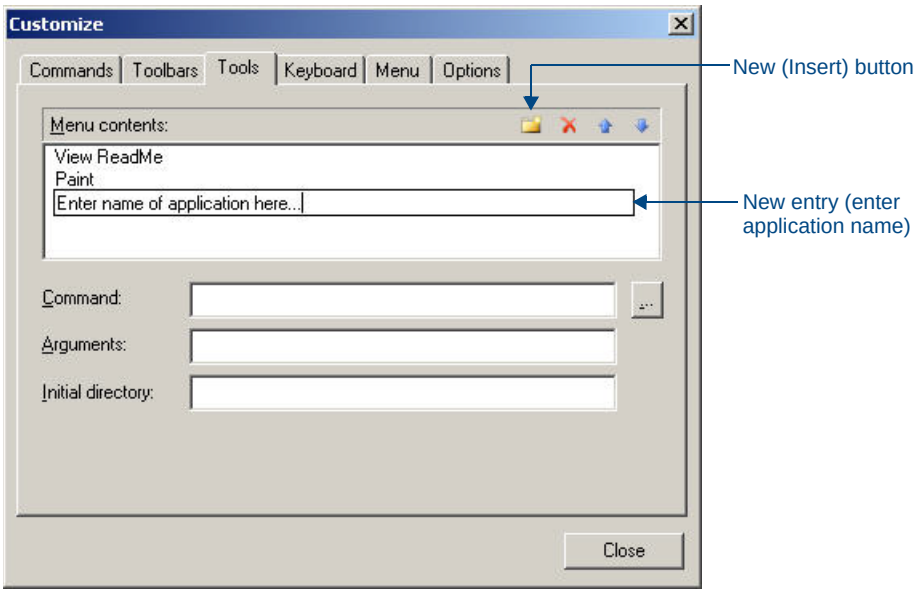


FIG. 426 Customize dialog (Tools tab) - New Entry

3. Enter a name for the application, as you want it to appear in the Tools menu.
4. Next to the *Command* field, click the browse button (**...**) to locate and select the application's .EXE file in the *Open* dialog.
5. The directory path is displayed in the **Command** text box.
6. Specify any **Arguments**, if necessary.
7. Specify an **Initial Directory**, if necessary.
8. Click **Close** to close the Customize dialog.
9. The new shortcut should appear at the bottom of the Tools menu.

Hotkeys (Keyboard Accelerators)

Hotkeys, sometimes referred to as "Keyboard Accelerators" (such as CTRL+C for the "Copy" command) can be customized in TPD4.

NOTE

You can view all of the current hotkey assignments in the Help Keyboard dialog (Help > Keyboard Map). The information in this dialog is read-only.

Setting Custom Hotkeys

Use the Keyboard tab of the Customize dialog to create new Hotkeys (Keyboard Accelerators), or to modify existing ones:

1. Choose **View** > **Customize** to open the Customize dialog, and open the Keyboard tab.
2. Choose a command category in the *Category* drop-down menu.
3. Choose a command in the *Commands* list.
4. Enter the new hotkey(s) in the *Select New Shortcut Key* field.

If you assign the minus key (-), always use the number pad on your keyboard, as opposed to the minus key in the main key set.

5. Click **Assign** to assign the key(s) to the selected menu item.
   - To remove a hotkey assignment, select the command in the *Commands* list, then highlight the command's hotkey assignment in the *Current Keys* list, and click **Remove**.
   - To reset all hotkey assignments to their default settings, click **Reset All**.

Multiple hotkeys can be assigned to the same command, but only the first one will be displayed next to the item in the menu after this type of change.

Select **Help > Keyboard Map** to view a listing of all current hotkey assignments in the Help Keyboard dialog.

Appendix A: G4 ComputerControl (G4CC)

Overview

AMX Modero Touch Panels, the NXP-TPI/4 (Touch Panel Interface), the TPI-PRO (Total Presentation Interface - Pro Edition), and TPD4 software support Computer Control.In combination with the NXA-USBTN (FG070-603), this innovative application allows the user to connect any computer to the control network (FIG. 427).

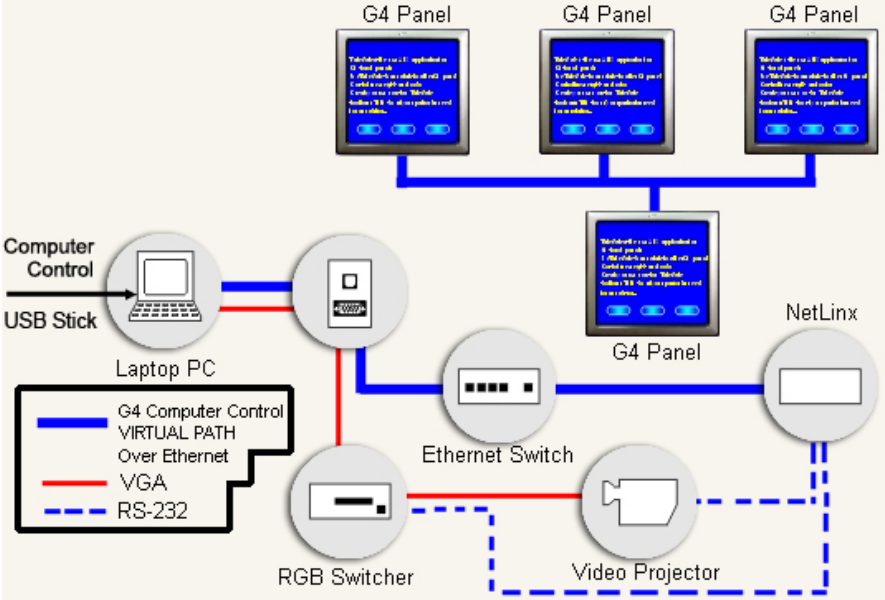


FIG. 427 G4 ComputerControl

Simply plug in the USBCC stick into any computer to experience complete access to control your computer directly through the Touch Panel.

The USB Control Stick contains everything that you need to implement Computer Control functionality including:

- The AmxCC server application
- The configCC configuration utility
- NetLinx cc-GuestPC Code Module
- Sample Code and Touch Panel Pages

System Requirements for G4 ComputerControl

Supported Operating Systems

- Windows 2000 (Service Pack 4 or greater)
- Windows XP (Service Pack 1 or greater)

System Requirements

- Latest G4 Touch Panel firmware
- USB port
- Pentium® 1 GHZ processor
- 256 MB of RAM

Other configurations may experience some performance impact while remote clients are connected.

Setting Up G4 ComputerControl

1: TPD4 Touch Panel File:

1. Create a new button, and select **Computer Control** as the button type (in the *General* tab of the Properties Control window). Nothing should be entered in the *Remote Host* and *Password* fields (FIG. 428):

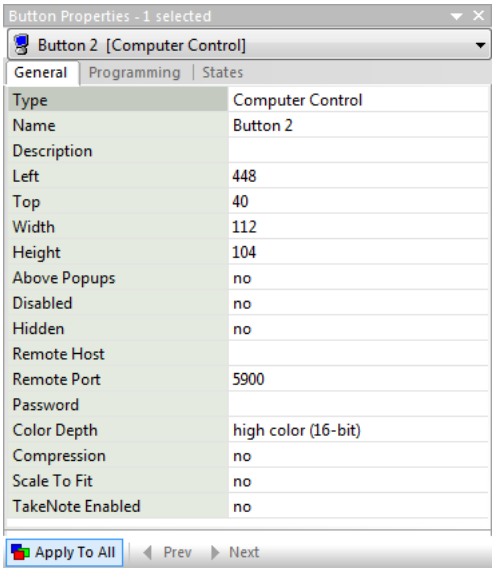


FIG. 428 Computer Control Button - Properties window

2. In the *Programming* tab of the Properties window, set the *Channel Code* to **0 - setup port**.
3. Click the down arrow next to Channel Code to access the options window (for Basic Codes), and click on Advanced Codes. All functions listed in the Computer Control sub-menu are for computer control functionality (FIG. 429).

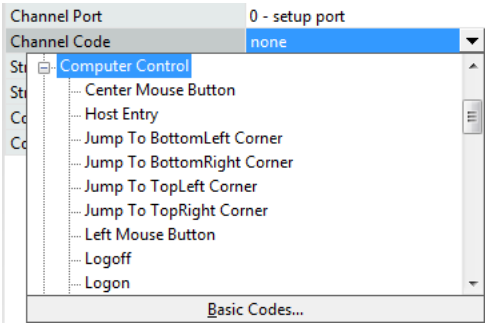


FIG. 429 Channel Codes - Computer Control sub-menu

4. Select the function that you want to assign to the new button.

2: Source Code:

1. A Telnet device connection must be added to your device definitions.

   Example:

```
vdvGuestPC = 0:5:0

Module Definition:

DEFINE_MODULE ' cc-GuestPCMod' < mdlGuestPC > (< vdvGuestPC >)
```

where:

- < mdlGuestPC > - local name for this instance of the cc-GuestPC module
- < vdvGuestPC > - device for cc-GuestPC to use for internal data events; this should be a DEFINE_DEVICE for the events to work properly

2. **cc-GuestPC.tko** is located in the module folder on the USB stick. The cc-GuestPC.tko file needs to be added to your workspace in Studio to compile with source code.
3. Compile and load source code to NetLinx master.

3: G4CC (Computer Control) Configuration:

Launch configCC.exe (on the USB stick). Use this application to configure G4CC.

Configuring G4 ComputerControl via configCC.exe

configCC.exe is the Configuration Utility for G4 Computer Control (included on the same USB stick as G4 Computer Control). Use this application to designate up to four Modero panels, NXP-TPI/4s or TPI-PROs that will be allowed to control this computer.

1. Connect the computer to an Ethernet Network that can communicate with the NetLinx Control System.
2. Insert the USB Computer Control Stick into the USB port on the computer that is being controlled. A series of USB driver installation popup windows appear.
3. Confirm that a new USB detection icon appears in the lower-right taskbar of the display window.
4. Use the computer's file browser to navigate to the USB stick's drive location and open the **Config** folder on the USB Control Stick drive directory.
5. Double-click the configCC executable to run the *G4 Computer Control Configuration Utility* from the NXA-USBTN drive (FIG. 430).

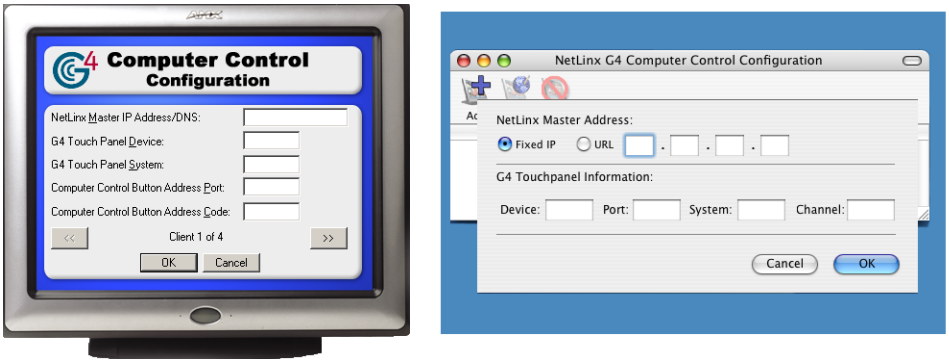


FIG. 430 G4 Computer Control Configuration Utility

This application allows you to designate up to four Modero panels, NXP-TPI/4s or TPI-PROs with rights to control this computer.

The following information is needed for each Modero panel, NXP-TPI/4 or TPI-PRO:

- **NetLinx Master IP Address/DNS (Fixed IP/URL)____.____.____.____**
  (Acquire the IP address of the NetLinx master by using NetLinx Studio 2.1 Diagnostics Tab / Network Addresses / Get IP Information).
- **G4 Touch Panel Device ID: _____**
  (Acquire the panel device number in the online tree of NetLinx Studio).
- **G4 Touch Panel System: _____**
  (Acquire the system number in the online tree of NetLinx Studio).
- **Computer Control Button Address Port: _____**
  (Acquire this number from the TPD4 touch panel file under the Button Properties / Programming Tab).
- **Computer Control Button Address Code (Channel): _____**
  (Acquire this number from the TPD4 touch panel file under the Button Properties / Programming Tab).

6. Press the **OK** button when finished adding a panel. This action creates the configuration file.
7. Add multiple panels using the next button on the PC (maximum of four).
8. Press the **OK** button when finished adding a panel. This action creates the configuration file in the main USB stick directory.

Once the USB Control Stick has been configured, it can be used on any computer residing on the Ethernet Network that can communicate with the NetLinx Control System.

Running G4 ComputerControl

Once the configuration file has been created:

Double-click to launch the amxCC.exe application located in the root directory of the USB Control Stick to begin your G4CC (G4 Computer Control) session.

The G4CC icon will appear in the tool tray (FIG. 431):

FIG. 431 G4CC Icon

The icon will turn green when a Modero panel, NXP-TPI/4 or TPI-PRO is connected to the computer (FIG. 432):

FIG. 432 G4CC Icon - connected

Upon opening this file, your PC should now be displayed on the touch panel.

To terminate your G4CC session, right click on the tool try icon and select *Close Computer Control*.

Creating Computer Control Buttons

- Computer Control buttons are constrained to one of three predefined sizes (640x480, 800x600 or 1024x768).
- Computer Control buttons support password protection separate from any additional username/ password credentials that the user may require to access the remote system once the connection has been made.
- Computer Control buttons are not supported on R-4 remote controllers.
- See the *Creating Computer Control Buttons* section on page 154 for details.

Setting Button Properties: Computer Control Buttons

Once you have created a Computer Control button, you can use the *General*, *Programming* and *States* tabs of the Properties window to set/edit button properties for the selected button.

NOTE

Computer Control buttons only use one state: ***Off****.*

See the *Setting Button Properties: Computer Control Buttons* section on page 155 for details.

Appendix B: TakeNote

Overview

TakeNote is an AMX application that works in conjunction with Modero panels/NXP-TPI/4/TPI-PRO, TPD4 and G4 Computer Control (G4CC) to allow you to use a G4 panel to annotate to either a windows desktop or on other G4 panels. Using TakeNote, presenters can use a stylus to directly draw onto a G4 panel's LCD screen and then have those annotations immediately displayed on both the target PC and up to up to 4 separate Modero touch panels simultaneously. TakeNote also supports annotated text entry from both an on-screen virtual keyboard or an externally connected keyboard (both on the PC and G4 panel).

TakeNote is packaged (along with G4 Computer Control) on the NXA-USBTN USB stick (FG070-603).

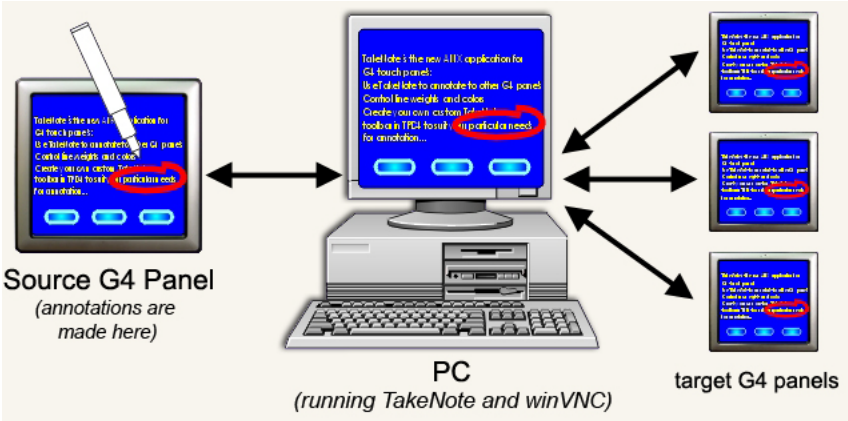


FIG. 433 TakeNote System Diagram

If you are not using a direct RGB connection (such as on a NXP-TPI/4 or TPI-PRO), G4CC must be running in order for TakeNote to function. TakeNote should be considered to be a counterpart application to G4CC.

There are several steps involved in setting up and using TakeNote:

1. Transfer the most current product firmware to your Touch Panels and NetLinx Masters.
2. Develop and upload a TPD4 panel project with at least some basic TakeNote function buttons.
3. Modify the Master Source Code using NetLinx Studio v 2.2 or higher.
4. Launch the configCC.exe file to configure the G4CC application.
5. Launch the amxCC.exe file and begin communication to the target PC.
6. Launch the TakeNote.exe file to allow annotations on the panel.

System Requirements for TakeNote

NOTE

Do not use the video output from the on-board (built-in) motherboard video.

Supported Operating Systems:

- Windows 2000 (Service Pack 4 or greater)
- Windows XP (Service Pack 1 or greater)

System Requirements:

- Latest Modero Touch Panel G4 firmware (version 2.13.53 or greater)
- USB port
- Pentium® 1 GHz processor (minimum, 2 GHz recommended)
- 75 MB of free disk space (minimum, 150 MB recommended)

Disk space usage is dependant on the number and size of the annotations stored on the hard drive (by default, they are stored on the USB unless the directory location is changed.

- 256 MB of RAM
- VGA screen resolution of 800 x 600 pixels (minimum, 1024 x 768 recommended)

Using TakeNote

The TakeNote application represents an additional interactive layer placed above an active G4 Computer Control (G4CC) button on your panel. TakeNote should be considered to be a counterpart application to G4CC.

In order to use TakeNote, it must first be set up and configured according to the steps described in the following sections:

Step 1: Updating AMX Hardware and Software

Transfer the most current product firmware to your Touch Panels and NetLinx Masters. Visit www.amx.com for the latest firmware files.

1. Connect the PC to an Ethernet Network that can communicate with the NetLinx Control System.
2. Update all AMX hardware (G4 compatible devices and NetLinx Masters) with the latest firmware files.
3. Use *WebUpdate* to update the applications if necessary. Alternatively, you could navigate to www.amx.com and download the latest versions of the programs.

Step 2: Developing a TPD4 project with G4CC and TakeNote Support

Develop and upload a TPD4 panel project with at least some basic TakeNote function buttons.

1. Launch TPD4 and open an existing project, or create a new one. If you already have a TPD4 project that utilizes G4CC, then open the Computer Control page in that project and skip to step 5.
2. Draw a button that covers most or all of the panel page.
3. In the General tab of the Properties Control Window, set the button's Type to Computer Control.
4. Enter the IP Address of the target PC in the Remote Host field. To determine the IP Address of your PC:
   a. Click **Start > Run** to open the *Run* dialog.
   b. Enter **cmd** into the *Open* field and click **OK** to open the command DOS prompt.
   c. From the **C:\>** command line, enter **ipconfig** to display the IP address of the PC. This information is then entered into the *Remote Host* field.
5. Toggle the *Scale To Fit* and *TakeNote Enabled* fields to **yes**.
6. In the *Programming* tab of the Properties Window, verify that the Address Port field = 1.
7. Double-click within the *Address Code* field and enter a value specific to the G4CC functionality within this TPD4 project (example: 123).
8. Create TakeNote functionality buttons (such as Toggle/Annotation, Clear Screen, Undo, and Color) as needed:
   a. Draw a General-type button on top of the new Computer Control button.
   b. In the *States* tab of the Properties Window, change the fill in color and label the button **Annotation**. When complete, navigate to the Programming tab.
   c. In the *Channel Port* field, select **0-setup port**.
   d. In the *Channel Code* field, select **Advanced Codes > TakeNote > Toggle/Activate Annotation**.

   Repeat these steps to add more TakeNote function buttons to the project as needed.
9. Select **Transfer > Connect > New** to connect the PC to the Master that is communicating to the target panel.
   a. Enter a **Name** for the connection and specify the IP address of the Master in the *Connection Settings* dialog. Click **OK** to create the new connection type and return to the *Connect* dialog.
   b. Click **Connect** to establish the connection to the Master.
10. Select **Transfer > Send to Panel** to locate your specific panel.

11. Determine your transfer options and click **Send** to begin the upload process to the target panel.

NOTE

If the configCC application has not yet been used to configure G4CC, the panel displays a message stating it cannot connect to the target PC. Once configCC has been run and G4CC is configured, this message will disappear and the target PC image will be reflected on the panel.

Step 3: Modifying the Source Code on your Master

Before you can use either the Computer Control or TakeNote applications, you must first modify the NetLinx Master Source Code to support the new (G4CC) functionality:

1. Insert the NXA-USBTN stick into a USB port on the PC that is being controlled. Confirm that a new USB detection icon appears in the windows taskbar.
2. Launch NetLinx Studio, select **File** > **Open**, navigate to the assigned USB stick drive and open the **cc-GuestPC Test.axs** file.

   This file acts as a source for the various communication parameters needed by the Master to allow the initial communication between the panel and the PC.
3. Scroll through the code in the cc-GuestPC TEST.axs file, and add the following information into your Master Source Code:
   a. Add a Telnet device connection to your device definitions by copying the following information from the DEFINE_DEVICE section (of the cc-GuestPC TEST.axs file) and pasting it into your source code:

   ```
   vdvGuestPC = 0:5:0
   ```

   b. Add the entire Module Definition:

   ```
   DEFINE_MODULE ' cc-GuestPCMod' < mdlGuestPC > (< vdvGuestPC >)
   ```

   where:
   - < mdlGuestPC > = local name for this instance of the cc-GuestPC module.
   - < vdvGuestPC > = device for cc-GuestPC to use for internal data events; this should be a DEFINE_DEVICE for the events to work properly.
4. Save and close the cc-GuestPC Test.axs file.
5. Right-click the Module folder (in the Workspace containing your current Project), and select **Add Existing Module File**.
6. Navigate to the Module folder on the USB stick, and select ***. TKO** from the *Files of type* field.
7. Select the **cc-GuestPC.tko** file and click **Open** > **OK**. This file needs to be added to your Workspace and compiled with the source code.
8. Save your Workspace, and press **F7** to begin compiling your Master Source Code and Module file. This process creates the .TKN file that will be transferred to the Master.

NOTE

Verify that your Master is online and communicating. Also verify that your source code is designated as the Master source code file.

9. Select **Tools** > **File Transfer** to open the *File Transfer* dialog.
10. Click the **Add** button to open the *Select Files for File Transfer* dialog, open to the *Current Workspace* tab.
11. Locate the compiled *. TKN file and select it for transfer.
12. Click **OK** to return to the *File Transfer* dialog.
13. Click **Send** to transfer the selected tkn file to the target Master.

Step 4: Configuring G4 Computer Control

configCC.exe (included on the USB stick) is the Configuration Utility for G4CC. Use this application to designate up to four Modero panels, NXP-TPI/4s or TPI-PROs that will be allowed to control this computer.

1. Use the computer's file browser to navigate to the assigned USB stick drive location and open the **Computer Control > Config** folder.
2. Use the configCC.exe application (on the USB stick) to configure the G4CC application.
3. Double-click the **configCC.exe** to run the configuration utility. The following information is needed by the Computer Control Configuration Utility for each G4 panel, NXP-TPI/4 or TPI-PRO interface:
   - **NetLinx Master IP Address/DNS (Fixed IP/URL):____.____.____.____**

     (To acquire the IP Address of the Master via NetLinx Studio, select Diagnostics > Network Addresses > Get IP Information).
   - **G4 Touch Panel Device ID: _____**

     (Acquire the panel device number in the online tree of NetLinx Studio).
   - **G4 Touch Panel System: _____**

     (Acquire the system number in the online tree of NetLinx Studio).
   - **Computer Control Button Address Port: _____**

     (Acquire this number via TPD4, in the Programming Tab of the Button Properties window).
   - **Computer Control Button Address Code (Channel): _____**

     (Acquire this number via TPD4, in the Programming Tab of the Button Properties window). This information was previously entered into the Address Code field for the Computer Control button.
4. Press the **OK** button when finished adding a single panel.

   This action modifies the amxCC.cfg file and stores your settings until the values within the configCC.exe file are altered.

   Once the USB Control Stick has been configured, it can be used on any computer residing on the Ethernet Network that can communicate with the NetLinx Control System.
5. Add multiple panels using the next button on the configuration utility screen (maximum of four panels).

Step 5: Running the G4 Computer Control Application

1. Once the configuration file has been created, double-click the AmxCC.exe file, located in the Computer Control folder, to begin your G4CC session and display the G4CC icon in the taskbar. The icon turns green when a Modero panel, NXP-TPI/4 or TPI-PRO is connected to the computer.
2. Upon opening this file, your PC will be displayed on the touch panel.
3. To terminate your Computer Control session, right-click on the G4CC icon and select Close Computer Control from the menu.

Step 6: Running the TakeNote Application

If you are not using a direct RGB connection (such as on a NXP-TPI/4 or TPI-PRO), G4CC must be running in order for TakeNote to function. Use the following steps to setup and implement TakeNote:

1. Use the computer's file browser to navigate to the USB stick drive and double-click the TakeNote executable to run the application.
2. The TakeNote icon appears in the taskbar.
   - Double-click this icon to open the TakeNote Configuration page.
   - Right-mouse click opens the TakeNote Context menu. Refer to the TakeNote Help file (F1) for more detailed information.

Exiting TakeNote

You can exit TakeNote through either the Context menu (in the Windows System tray) or via the Exit TakeNote button (located in the Configuration dialog).

TakeNote Commands

TakeNote Commands	
StartAnno- width, height	This command activates a session (if the connection is accepted) and enters the annotation mode for the clients IP. The first client to connect brings the annotation window to the forefront. Width and height are the dimensions of the client panel and TakeNote uses these dimensions to handle point translation while annotating. Return: 0 if OK to continue and 1 if not.
ClearAll	This command sends a clear to all client sessions.
ClearAnno	This command clears annotations from a given client.
Down- x, y	This command starts a drawing segment at point x, y.
EndAnno	This command lets TakeNote know that the client is done annotating. When the last client finishes annotating, the Canvas is hidden again.
Flush	This command removes all annotations from all sessions and memory.
Move- x, y	This command (issued while moving around the client) sends points to TakeNote to build up a segment of small lines as a single annotation. It occurs between the Down and Up commands. X and Y are translated via the dimensions specified in StartAnno command.
PrintAnno	This command will send a snapshot of the current desktop to the default printer.
SaveAnno	This command saves the current desktop snapshot (annotations and all).
SendText- text	In text mode, this command sends characters across to TakeNote from the down point.
SetCanvas- <mode: 0,1,2>	This command sets the canvas mode for all annotations. 0 = transparent 1= “White Board” 2 = “Black Board”
SetColor- R,G,B,A	This command sets the color and alpha (not implemented) of the annotating pen for the client.
SetFontName- font name	This command sets the font for the text elements.
SetFontSize- #	This command sets the font size of the text element.
SetMode- <mode: 0-7, sides (only for poly)>	This command sets the drawing mode. 0 - Freehand lines 1 - laser pointer 2 - two point straight line 3 - rectangle 4 - ellipse 5 - n sided polygons 6 - text 7 - grab mode
SetPen- R, G, B, A, Width, Style	This command sets the color, alpha (not implemented), width and style of the annotating pen for the client.
SetStyle- <style: 0,1,2>	This command sets the style of the annotating pen for the client. 0 = solid line 1= dotted line 2 = dashed

TakeNote Commands (Cont.)	
SetWidth-Width	This command sets the width of the annotating pen for the client.
Redo	This command redoes the last undo of a given client.
Undo	This command undoes the previous annotation of the given client.
UndoAll	This command sends an undo on all client sessions.
Up	This command ends a segment and enables the session to save the current annotation as one anatomical unit for future reference.

Appendix C: Text Effects and Border Styles

Text Effects

The following topics provide previews of each Text Effect, selectable via the Text Effect drop-down menu in the States tab of the Properties window (FIG. 434):

FIG. 434 Properties window (States tab) - Text Effect drop-down menu

NOTE

For List Box buttons, this property applies to all the buttons in the selected column.

Text Effects - Glow

The following Text Effects are contained in the "Glow" group (FIG. 435):

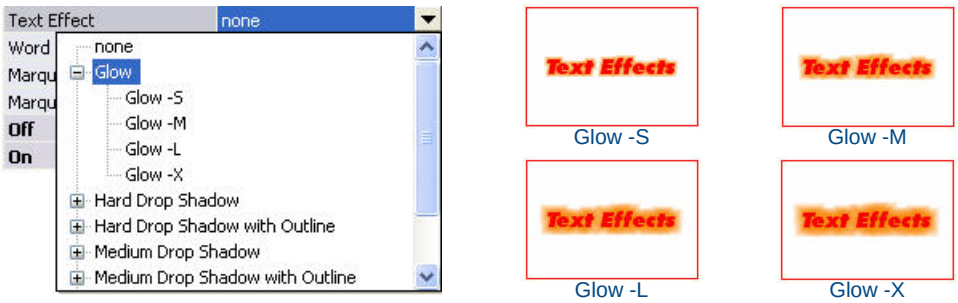


FIG. 435 Text Effects - Glow

Text Effects - Hard Drop Shadow

The following Text Effects are contained in the "Hard Drop Shadow" group (FIG. 436):

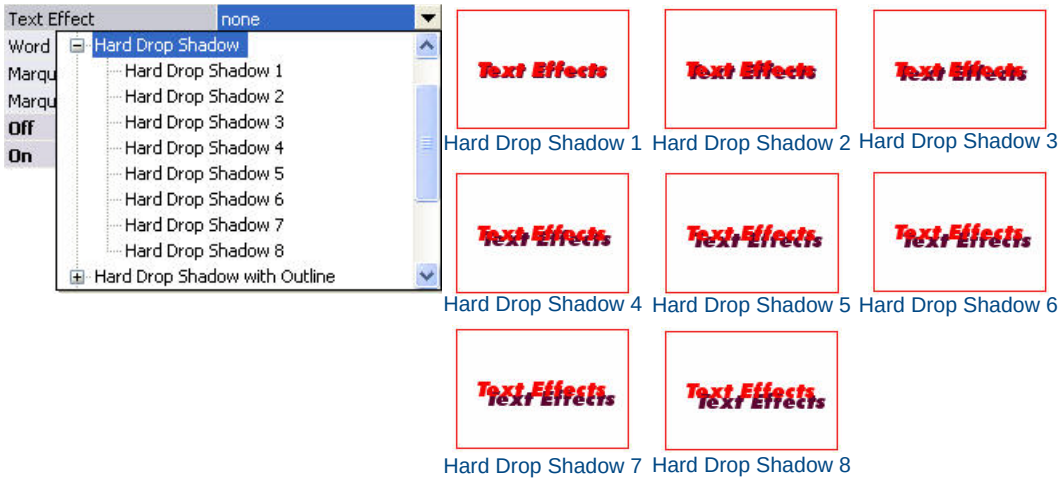


FIG. 436 Text Effects - Hard Drop Shadow

Text Effects - Hard Drop Shadow with Outline

The following Text Effects are contained in the "Hard Drop Shadow with Outline" group (FIG. 437):

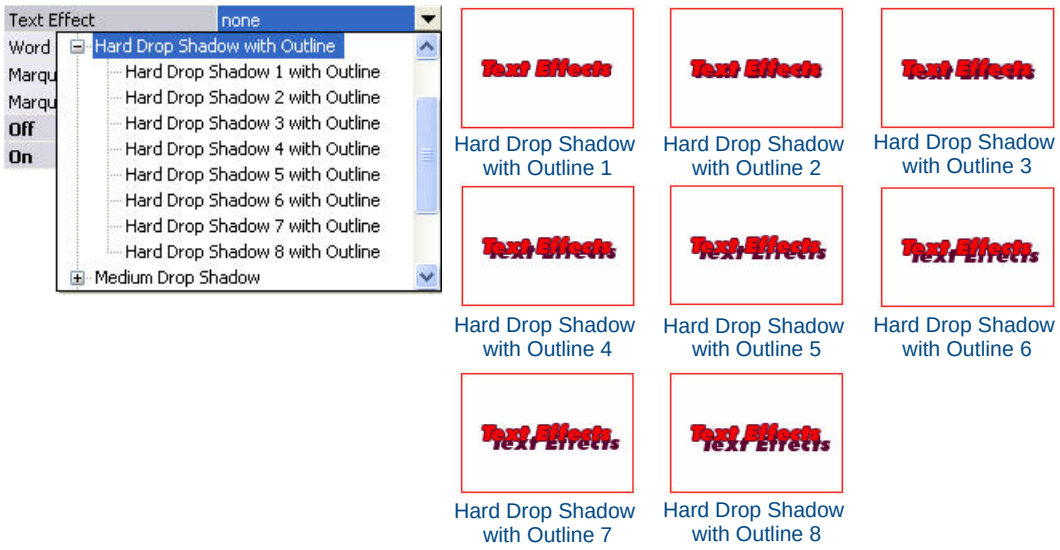

Text Effect
none
Word
Marqu
Marqu
Off
On
Hard Drop Shadow with Outline
Hard Drop Shadow 1 with Outline
Hard Drop Shadow 2 with Outline
Hard Drop Shadow 3 with Outline
Hard Drop Shadow 4 with Outline
Hard Drop Shadow 5 with Outline
Hard Drop Shadow 6 with Outline
Hard Drop Shadow 7 with Outline
Hard Drop Shadow 8 with Outline
Medium Drop Shadow
Hard Drop Shadow with Outline 1
Hard Drop Shadow with Outline 2
Hard Drop Shadow with Outline 3
Hard Drop Shadow with Outline 4
Hard Drop Shadow with Outline 5
Hard Drop Shadow with Outline 6
Hard Drop Shadow with Outline 7
Hard Drop Shadow with Outline 8

FIG. 437 Text Effects - Hard Drop Shadow with Outline

Text Effects - Medium Drop Shadow

The following Text Effects are contained in the "Medium Drop Shadow" group (FIG. 438):

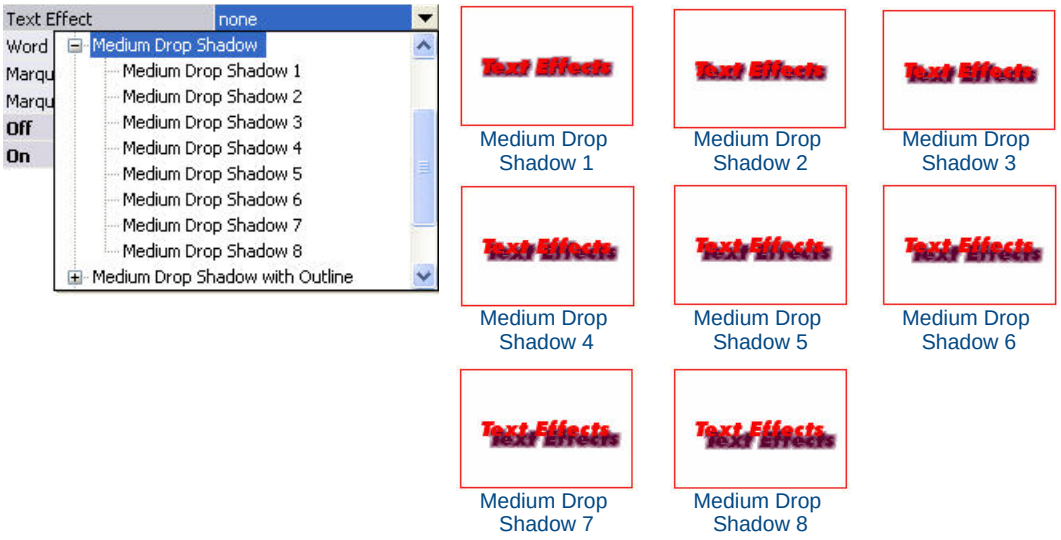


FIG. 438 Text Effects - Medium Drop Shadow

Text Effects - Medium Drop Shadow with Outline

The following Text Effects are contained in the "Medium Drop Shadow with Outline" group (FIG. 439):

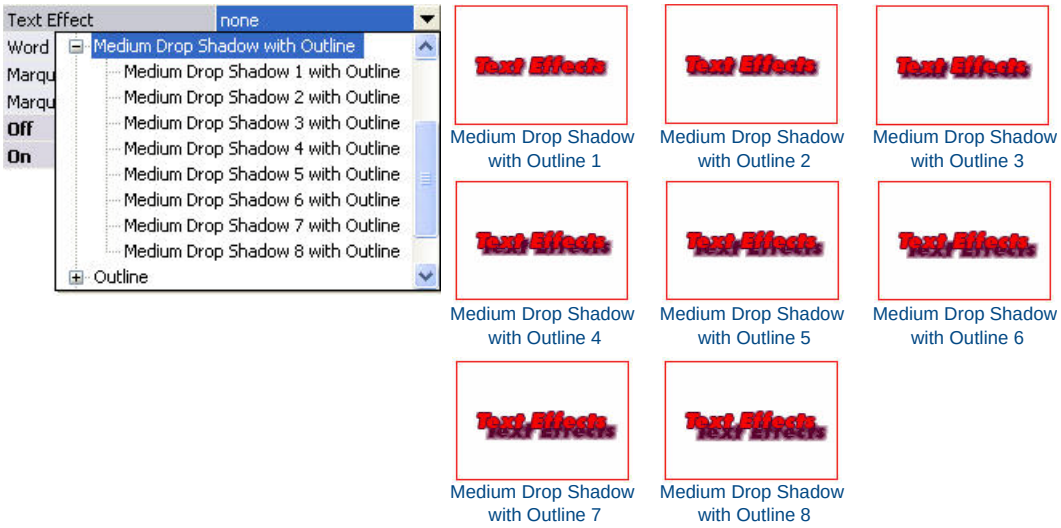

Text Effect
none
Word
Marqu
Marqu
Off
On
Medium Drop Shadow with Outline
Medium Drop Shadow 1 with Outline
Medium Drop Shadow 2 with Outline
Medium Drop Shadow 3 with Outline
Medium Drop Shadow 4 with Outline
Medium Drop Shadow 5 with Outline
Medium Drop Shadow 6 with Outline
Medium Drop Shadow 7 with Outline
Medium Drop Shadow 8 with Outline
Outline
Medium Drop Shadow with Outline 1
Medium Drop Shadow with Outline 2
Medium Drop Shadow with Outline 3
Medium Drop Shadow with Outline 4
Medium Drop Shadow with Outline 5
Medium Drop Shadow with Outline 6
Medium Drop Shadow with Outline 7
Medium Drop Shadow with Outline 8

FIG. 439 Text Effects - Medium Drop Shadow with Outline

Text Effects - Outline

The following Text Effects are contained in the "Outline" group (FIG. 440):

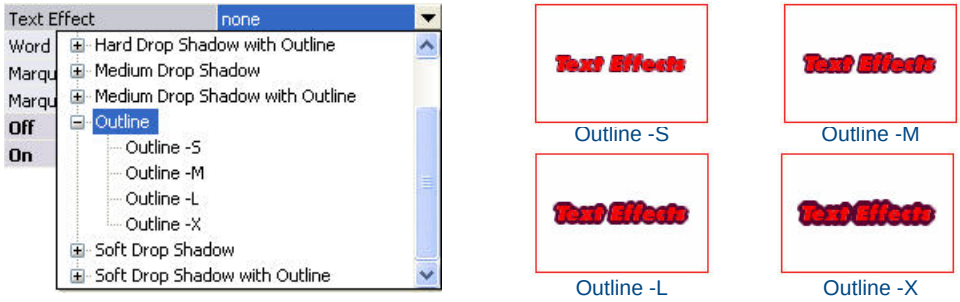


FIG. 440 Text Effects - Outline

Text Effects - Soft Drop Shadow

The following Text Effects are contained in the "Soft Drop Shadow" group (FIG. 441):

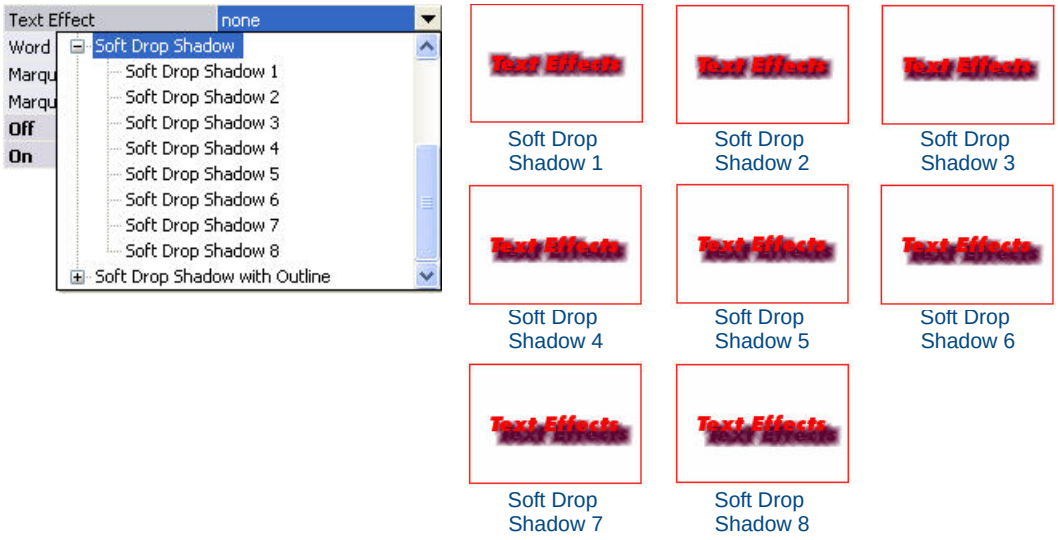


FIG. 441 Text Effects - Soft Drop Shadow

Text Effects - Soft Drop Shadow with Outline

The following Text Effects are contained in the "Soft Drop Shadow with Outline" group (FIG. 442):

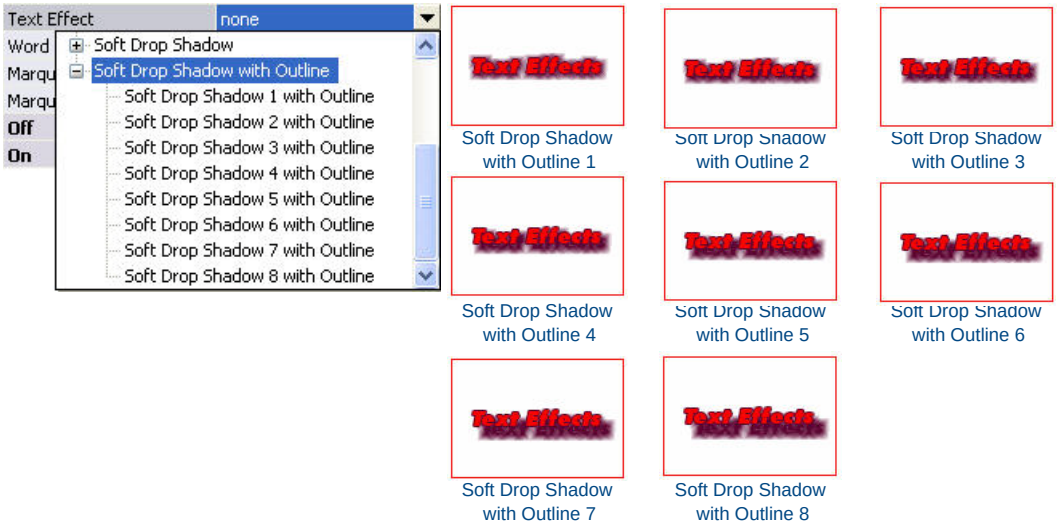

Text Effect
none
Word
Marqu
Marqu
Off
On
Soft Drop Shadow
Soft Drop Shadow with Outline
Soft Drop Shadow 1 with Outline
Soft Drop Shadow 2 with Outline
Soft Drop Shadow 3 with Outline
Soft Drop Shadow 4 with Outline
Soft Drop Shadow 5 with Outline
Soft Drop Shadow 6 with Outline
Soft Drop Shadow 7 with Outline
Soft Drop Shadow 8 with Outline
Text Effects
Soft Drop Shadow with Outline 1
Soft Drop Shadow with Outline 2
Soft Drop Shadow with Outline 3
Soft Drop Shadow with Outline 4
Soft Drop Shadow with Outline 5
Soft Drop Shadow with Outline 6
Soft Drop Shadow with Outline 7
Soft Drop Shadow with Outline 8

FIG. 442 Text Effects - Soft Drop Shadow with Outline

Border Styles

The following topics provide previews of each Border Style, selectable via the **Border Name** drop-down menu in the States tab of the Properties window (FIG. 443):

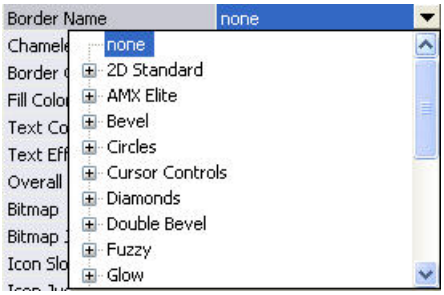


FIG. 443 Properties window (States tab) - Border Name drop-down menu

- If a Border Style was specified (in the General tab), then the borders listed here are limited to those contained in the selected Border Style.
- If no Border Style was specified (none), then all border names are available in the provided list.

NOTE

For List Box buttons, this property applies to all the buttons in the selected column.

Border Styles - 2D Standard

The following Border Styles are contained in the "2D Standard" group (FIG. 444):

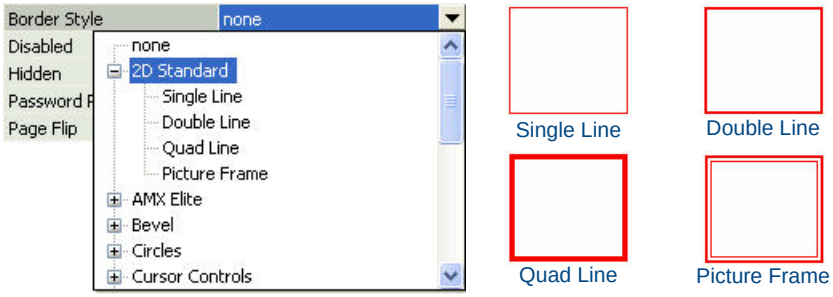


FIG. 444 Border Group - 2D Standard

Border Styles - AMX Elite

The following Border Styles are contained in the "AMX Elite" group (FIG. 445):

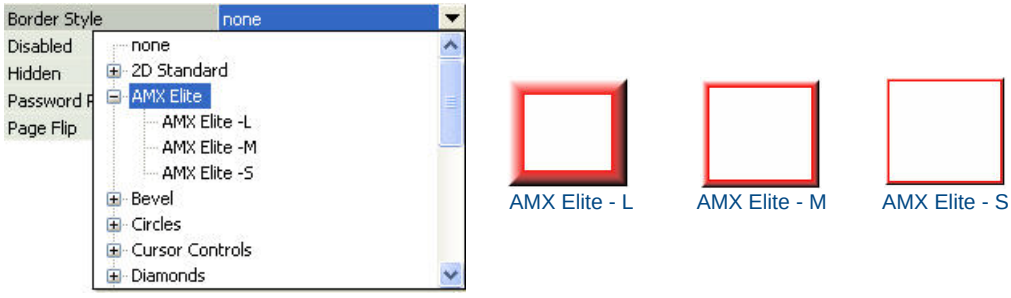


FIG. 445 Border Styles - AMX Elite

Border Styles - Bevel

The following Border Styles are contained in the "Bevel" group (FIG. 446):

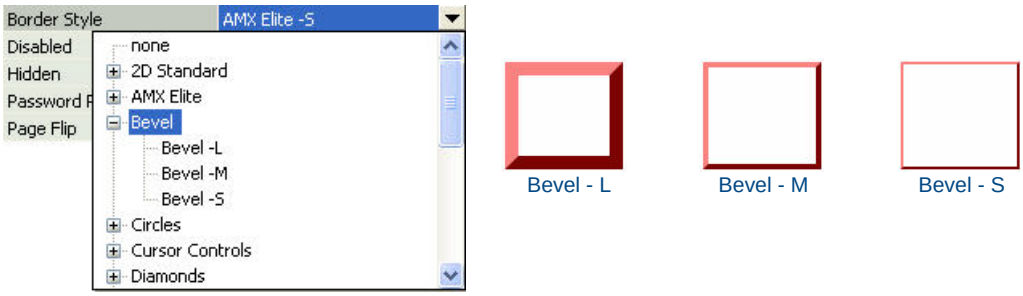


FIG. 446 Border Styles - Bevel

Border Styles - Circles

The following Border Styles are contained in the "Circles" group. Note that the Circles borders are provided in many sizes, listed from smallest to largest. Pick a Circles border that best fits your button size. The figures below provide previews of several (not all) available Circles border styles: (FIG. 447):

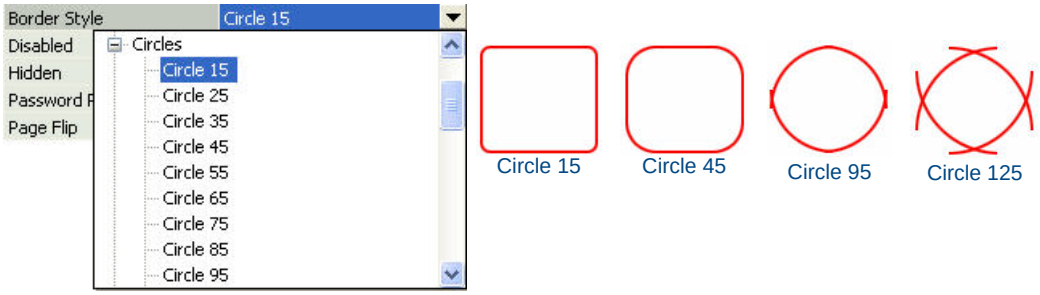


FIG. 447 Border Styles - Circles

Note that as the size of the Circles border is increased, the arcs that form the rounded corners of the (rectangular) button increase. Depending on the size of the button, these arcs may begin to overlap.

Border Styles - Cursor Controls

The following Border Styles are contained in the "Cursor Controls" group (FIG. 448):

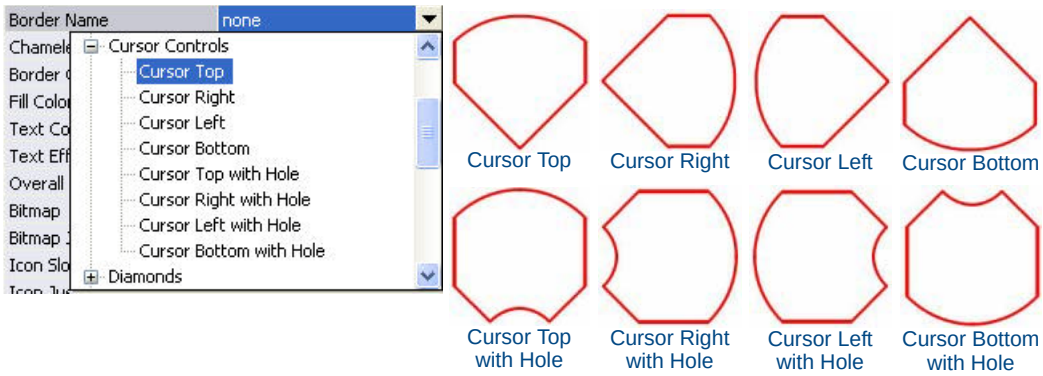


FIG. 448 Border Styles - Cursor Controls

Border Styles - Diamonds

The following Border Styles are contained in the "Diamonds" group (FIG. 449). Note that the Diamonds borders are provided in many sizes, listed from smallest to largest. Pick a Diamonds border that best fits your button size. The figures below provide previews of several (not all) available Diamonds border styles:

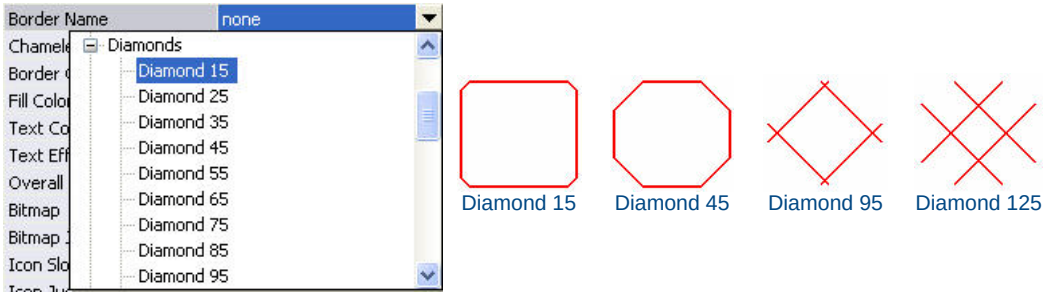


FIG. 449 Border Styles - Diamonds

Note that as the size of the Diamond border is increased, the 45° angles that form the corners of the (rectangular) button increase. Depending on the size of the button, these angles may begin to overlap.

Border Styles - Double Bevel

The following Border Styles are contained in the "Double Bevel" group (FIG. 450):

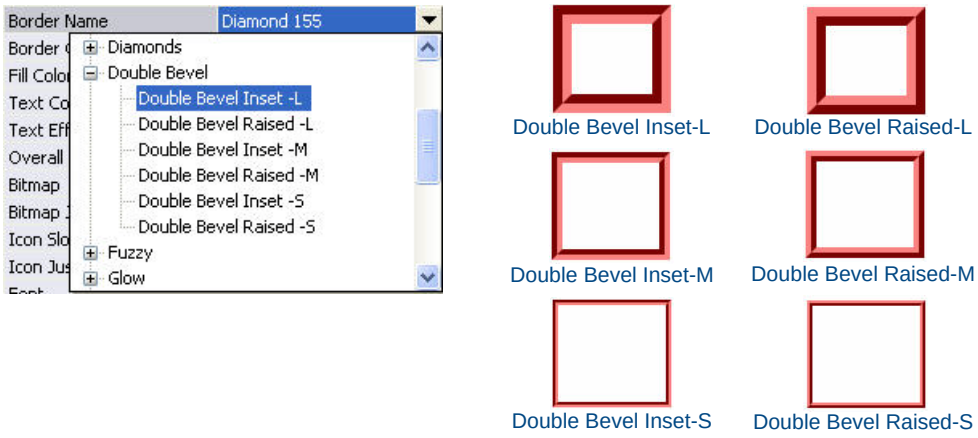


FIG. 450 Border Styles - Double Bevel

Border Styles - Fuzzy

The following Border Style is contained in the "Fuzzy" group (FIG. 451):

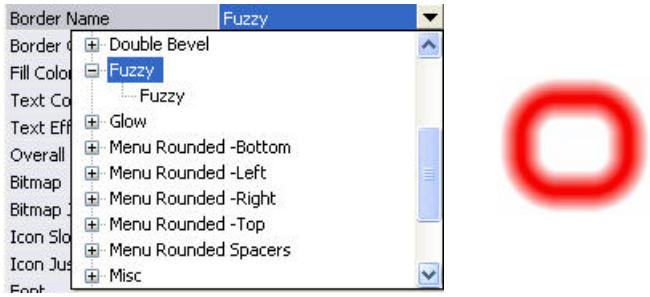


FIG. 451 Border Styles - Fuzzy

Border Styles - Glow

The following Border Styles are contained in the "Glow" group (FIG. 452):

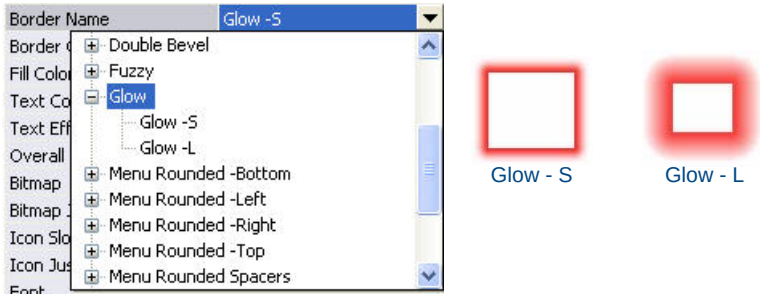


FIG. 452 Border Styles - Glow

Border Styles - Menu Rounded-Bottom

The following Border Styles are contained in the "Menu Rounded-Bottom" group (FIG. 453). Note that the Menu Bottom Rounded borders are provided in many sizes, listed from smallest to largest. Pick a Menu Bottom Rounded border that best fits your button size. The figure below provides previews of several (not all) available Menu Bottom Rounded Bottom border styles:

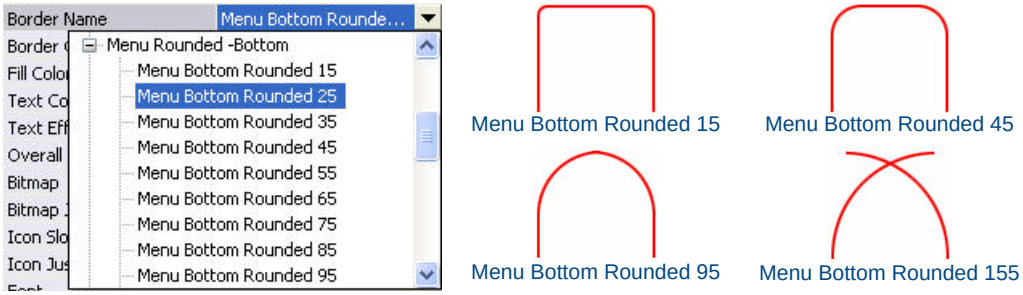


FIG. 453 Border Styles - Menu Rounded-Bottom

Note that as the size of the Menu Bottom Rounded border is increased, the arcs that form the rounded corners of the (rectangular) button increase. Depending on the size of the button, these arcs may begin to overlap.

Border Styles - Menu Rounded-Left

The following Border Styles are contained in the "Menu Rounded-Left" group (FIG. 454). Note that the Menu Rounded Left borders are provided in many sizes, listed from smallest to largest. Pick a Menu Rounded Left border that best fits your button size. The figure below provides previews of several (not all) available Menu Rounded Left border styles:

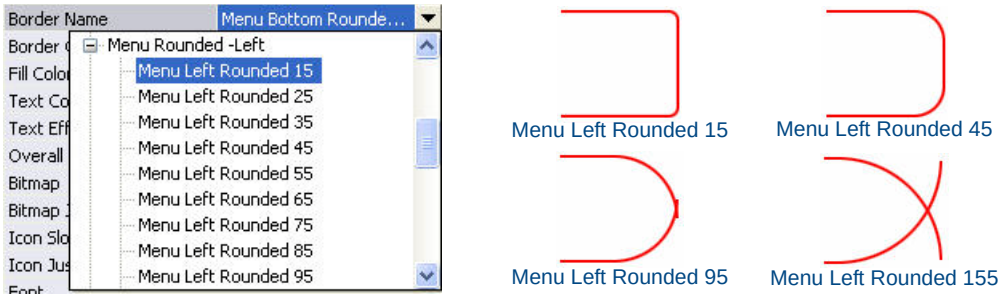


FIG. 454 Border Styles - Menu Rounded-Left

Note that as the size of the Menu Left Rounded border is increased, the arcs that form the rounded corners of the (rectangular) button increase. Depending on the size of the button, these arcs may begin to overlap.

Border Styles - Menu Rounded-Right

The following Border Styles are contained in the "Menu Rounded-Right" group (FIG. 455). Note that the Menu Rounded Right borders are provided in many sizes, listed from smallest to largest. Pick a Menu Rounded Right border that best fits your button size. The figures below provide previews of several (not all) available Menu Rounded Right border styles:

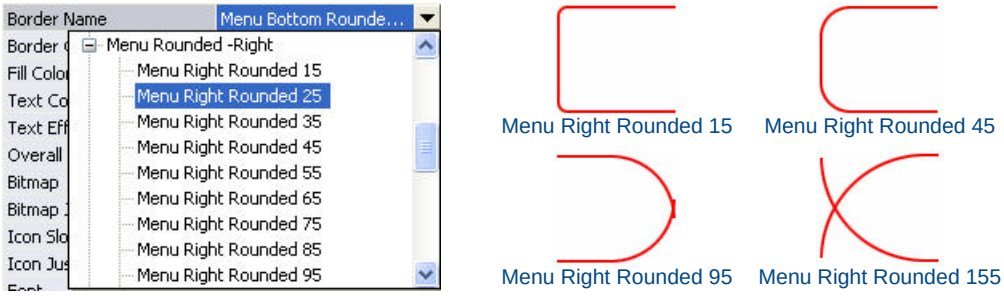


FIG. 455 Border Styles - Menu Rounded-Right

Note that as the size of the Menu Right Rounded border is increased, the arcs that form the rounded corners of the (rectangular) button increase. Depending on the size of the button, these arcs may begin to overlap.

Border Styles - Menu Rounded-Top

The following Border Styles are contained in the "Menu Rounded-Top" group (FIG. 456). Note that the Menu Rounded Top borders are provided in many sizes, listed from smallest to largest. Pick a Menu Rounded Top border that best fits your button size. The figure below provides previews of several (not all) available Menu Rounded Top border styles:

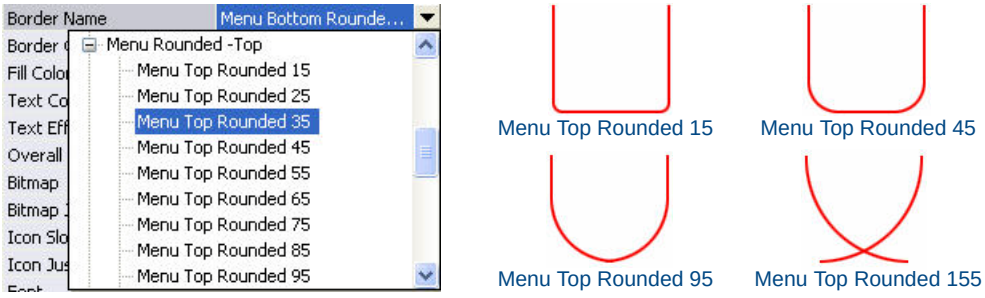


FIG. 456 Border Styles - Menu Rounded-Top

Note that as the size of the Menu Top Rounded border is increased, the arcs that form the rounded corners of the (rectangular) button increase. Depending on the size of the button, these arcs may begin to overlap.

Border Styles - Menu Rounded Spacers

The following Border Styles are contained in the "Menu Rounded Spacers" group (FIG. 457):

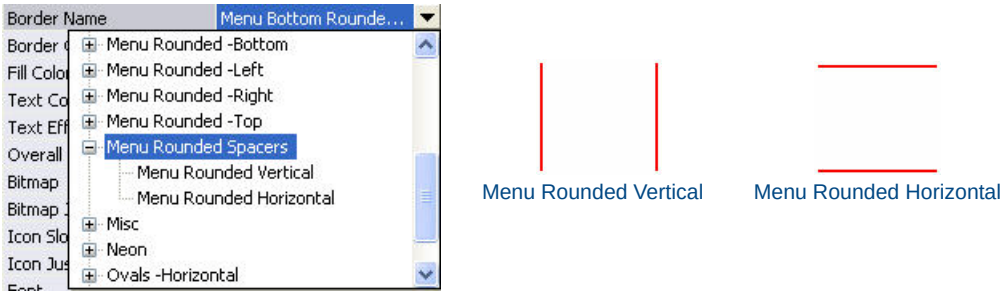


FIG. 457 Border Styles - Menu Rounded Spacers

Border Styles - Misc

The following Border Styles are contained in the "Misc" group (FIG. 458):

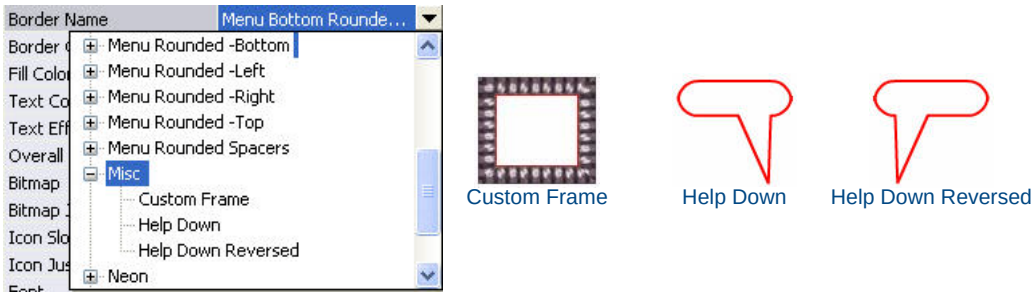


FIG. 458 Border Styles - Misc

Border Styles - Neon

The following Border Styles are contained in the "Neon" group (FIG. 459):

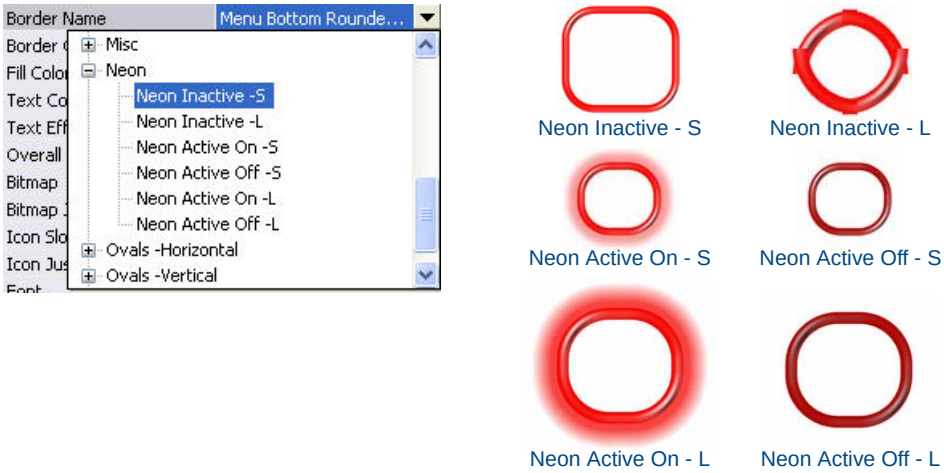


FIG. 459 Border Styles - Neon

Border Styles - News Header

The following Border Styles are contained in the "News Header" group (FIG. 460):

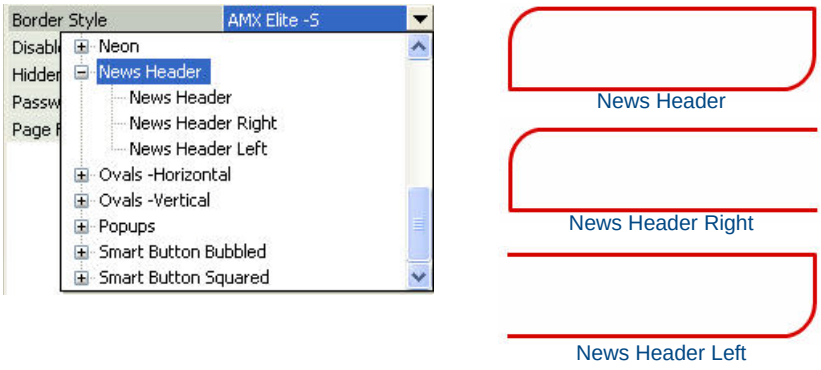


FIG. 460 Border Styles - News Header

Border Styles - Ovals -Horizontal

The following Border Styles are contained in the "Ovals -Horizontal" group (FIG. 461):

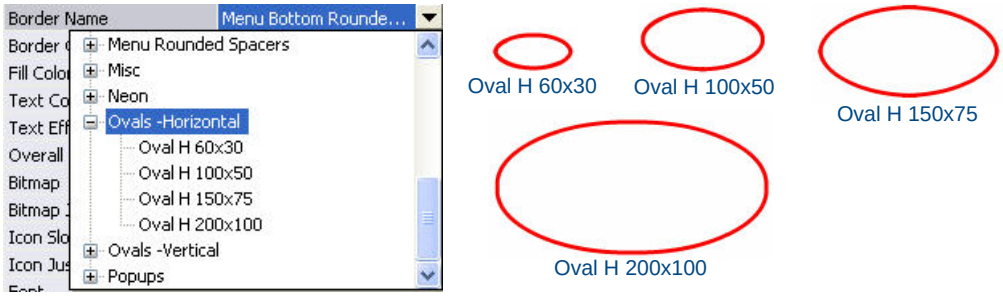


FIG. 461 Border Styles - Ovals -Horizontal

Note that Oval border styles are intended to allow you to make (rectangular) buttons appear as ovals on-screen. Once you apply these border styles, you may need to resize the button to adjust the borders.

Border Styles - Ovals -Vertical

The following Border Styles are contained in the "Ovals -Vertical" group (FIG. 462):

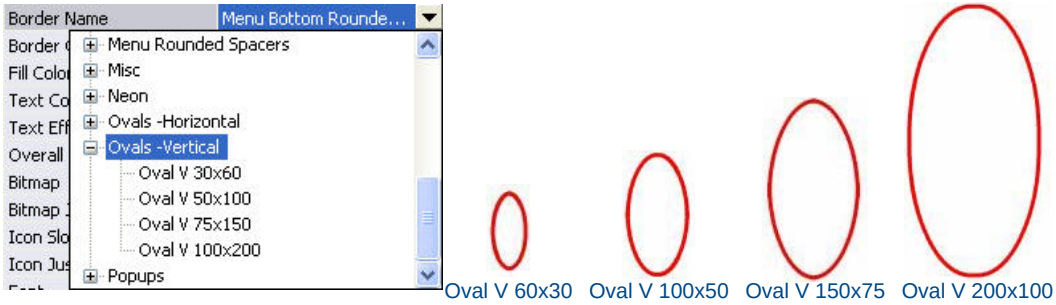


FIG. 462 Border Styles - Ovals -Vertical

Note that Oval border styles are intended to allow you to make (rectangular) buttons appear as ovals on-screen. Once you apply these border styles, you may need to resize the button to adjust the borders.

Border Styles - Popups

The following Border Styles are contained in the "Popups" group (FIG. 463):

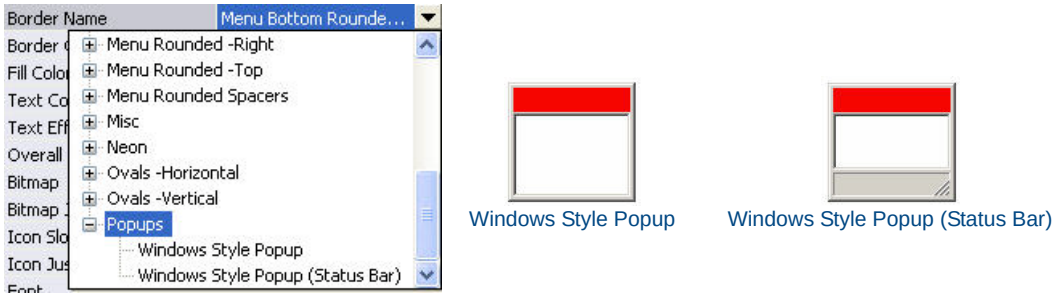


FIG. 463 Border Styles - 2D Standard

Border Styles - Smart Button Bubbled

The following Border Styles are contained in the "Smart Button Bubbled" group (FIG. 464):

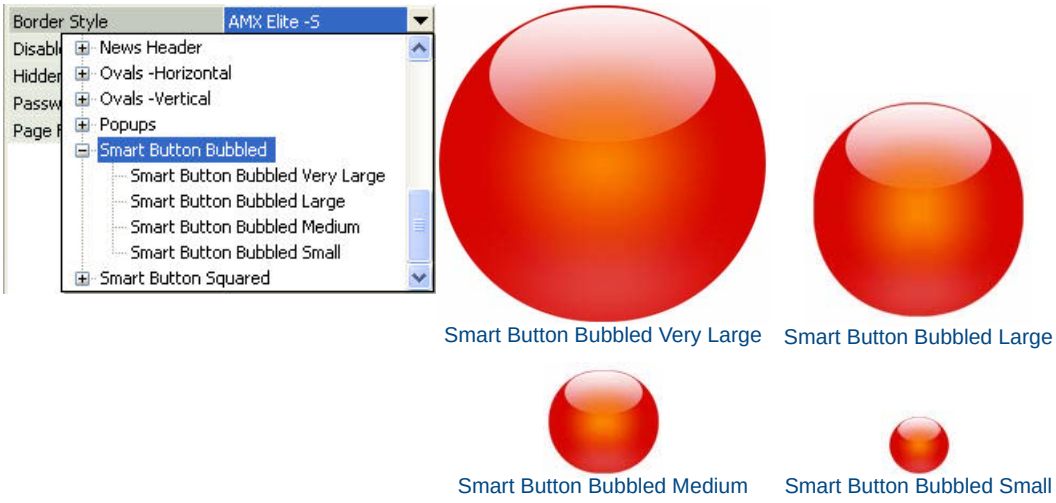


FIG. 464 Border Styles - Smart Button Bubbled

The images above use Red as the border color and Orange as the fill color, to illustrate the transparent/ reflective effects of the Smart Button color scheme. Experiment with using different complimentary colors for the border and fill colors - many combinations will produce interesting glow effects (FIG. 465):

FIG. 465 Smart Button Bubbled - Example Color Variations

Border Styles - Smart Button Squared

The following Border Styles are contained in the "Smart Button Squared" group (FIG. 466):

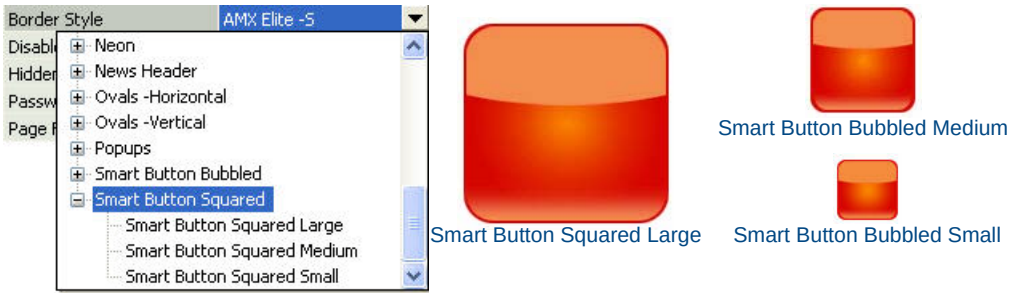


FIG. 466 Border Styles - Smart Button Squared

The images above use Red as the border color and Orange as the fill color, to illustrate the transparent/ reflective effects of the Smart Button color scheme. Experiment with using different complimentary colors for the border and fill colors - many combinations will produce interesting glow effects (FIG. 467):

FIG. 467 Smart Button Squared - Example Color Variations

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